

LTIP
CONTINGENCY
#2

APPLICATION FOR FINANCIAL ASSISTANCE
Revised 4/99

IMPORTANT: Please consult the "Instructions for Completing the Project Application" for assistance in completion of this form.

SUBDIVISION: CITY OF CINCINNATI CODE# 061-15000

DISTRICT NUMBER: 2 COUNTY: Hamilton DATE 9 / 08 / 2007

CONTACT: Richard Pohana PHONE # (513) 352-5278

(THE PROJECT CONTACT PERSON SHOULD BE THE INDIVIDUAL WHO WILL BE AVAILABLE ON A DAY-TO-DAY BASIS DURING THE APPLICATION REVIEW AND SELECTION PROCESS AND WHO CAN BEST ANSWER OR COORDINATE THE RESPONSE TO QUESTIONS)

FAX (513) 352-1581 E-MAIL: rich.pohana@cincinnati-oh.gov

PROJECT NAME: Elberon Avenue Rockfall Protection

SUBDIVISION TYPE

(Check Only 1)

- ☐ 1. County
☒ 2. City
☐ 3. Township
☐ 4. Village
☐ 5. Water/Sanitary District
(Section 6119 O.R.C.)

FUNDING TYPE REQUESTED

(Check All Requested & Enter Amount)

- ☒ 1. Grant \$108,875
☐ 2. Loan \$
☐ 3. Loan Assistance \$

PROJECT TYPE

(Check Largest Component)

- ☒ 1. Road
☐ 2. Bridge/Culvert
☐ 3. Water Supply
☐ 4. Wastewater
☐ 5. Solid Waste
☐ 6. Stormwater

TOTAL PROJECT COST: \$ 217,750 FUNDING REQUESTED: \$ 108,875

DISTRICT RECOMMENDATION
To be completed by the District Committee ONLY

GRANT: \$ 108,875 LOAN ASSISTANCE: \$
SCIP LOAN: \$ RATE: % TERM: yrs.
RLP LOAN: \$ RATE: % TERM: yrs.

(Check Only 1)

- ☐ State Capital Improvement Program
☒ Local Transportation Improvements Program
☐ Small Government Program

HAMILTON COUNTY
ENGINEER'S
PERMIT DEPARTMENT
2007 SEP 21 PM 1:18

FOR OPWC USE ONLY

PROJECT NUMBER: C / C
Local Participation %
OPWC Participation %
Project Release Date: / /
OPWC Approval:

APPROVED FUNDING: \$
Loan Interest Rate: %
Loan Term: years
Maturity Date:
Date Approved: / /
SCIP Loan RLP Loan

1.0 PROJECT FINANCIAL INFORMATION

1.1 PROJECT ESTIMATED COSTS:
(Round to Nearest Dollar)

TOTAL DOLLARS

**FORCE ACCOUNT
DOLLARS**

a.) Basic Engineering Services:

\$.00

Preliminary Design \$
Final Design \$
Bidding \$. 00
Construction Phase \$. 00

Additional Engineering Services \$.00

*Identify services and costs below.

b.) Acquisition Expenses:

Land and/or Right-of-Way

\$

c.) Construction Costs:

\$ 212,750.00

d.) Equipment Purchased Directly:

\$.00

e.) Permits, Advertising, Legal:
(Or Interest Costs for Loan Assistance
Applications Only)

\$.00

f.) Construction Contingencies:

\$ 5,000.00

g.) TOTAL ESTIMATED COSTS:

\$ 217,750.00

*List Additional Engineering Services here:
Service:

Cost:

1.2 PROJECT FINANCIAL RESOURCES:
(Round to Nearest Dollar and Percent)

	DOLLARS	%
a.) Local In-Kind Contributions	\$ <u> .00</u>	
b.) Local Revenues	\$ <u> 108,875.00</u>	<u>50%</u>
c.) Other Public Revenues	\$ <u> .00</u>	
ODOT	\$ <u> .00</u>	
Rural Development	\$ <u> .00</u>	
OEPA	\$ <u> .00</u>	
OWDA	\$ <u> .00</u>	
CDBG	\$ <u> .00</u>	
OTHER _____	\$ <u> .00</u>	
SUBTOTAL LOCAL RESOURCES:	\$ <u> 108,875.00</u>	<u>50%</u>
d.) OPWC Funds		
1. Grant	\$ <u> 108,875.00</u>	<u>50%</u>
2. Loan	\$ <u> .00</u>	
3. Loan Assistance	\$ <u> .00</u>	
SUBTOTAL OPWC RESOURCES:	\$ <u> 108,875.00</u>	<u>50%</u>
e.) TOTAL FINANCIAL RESOURCES:	\$ <u> 217,750.00</u>	<u>100%</u>

1.3 AVAILABILITY OF LOCAL FUNDS:

Attach a statement signed by the Chief Financial Officer listed in section 5.2 certifying all local share funds required for the project will be available on or before the earliest date listed in the Project Schedule section.

ODOT PID# _____ Sale Date:
STATUS: (Check one)
 Traditional
 Local Planning Agency (LPA)
 State Infrastructure Bank

2.0 PROJECT INFORMATION

If project is multi-jurisdictional, information must be consolidated in this section.

2.1 PROJECT NAME: Elberon Avenue Rockfall Protection

2.2 BRIEF PROJECT DESCRIPTION - (Sections A through C):

A: SPECIFIC LOCATION:

Elberon Avenue from Mt. Hope Avenue to Purcell Avenue

PROJECT ZIP CODE: 45205

B: PROJECT COMPONENTS:

The project involves the construction of a barrier at the base of the outbound lane to prevent rocks and rapid earthflows from falling into the travel lane. The center line of the roadway will be moved further into the inbound lane which will allow for the stripping of a clear zone between the proposed wall and the two outbound lanes.

C: PHYSICAL DIMENSIONS / CHARACTERISTICS:

The barrier wall will have a length of 730 feet. Pavement stripping will occur over a length of one-half mile.

D: DESIGN SERVICE CAPACITY:

Detail current service capacity vs. proposed service level.

Road or Bridge: Current ADT 15,399 Year: 2007 Projected ADT: _____ Year: _____

Water/Wastewater: Based on monthly usage of 7,756 gallons per household, attach current rate ordinance. Current Residential Rate: \$ _____ Proposed Rate: \$ _____

Stormwater: Number of households served: _____

2.3 USEFUL LIFE / COST ESTIMATE: Project Useful Life: 75+ Years.

Attach Registered Professional Engineer's statement, with original seal and signature confirming the project's useful life indicated above and estimated cost.

3.0 REPAIR/REPLACEMENT or NEW/EXPANSION:

TOTAL PORTION OF PROJECT REPAIR/REPLACEMENT \$ 217,750.00

TOTAL PORTION OF PROJECT NEW/EXPANSION \$.00

4.0 PROJECT SCHEDULE: *

	BEGIN DATE	END DATE
4.1 Engineering/Design:	<u>8 / 1 / 07</u>	<u>5 / 1 / 08</u>
4.2 Bid Advertisement and Award:	<u>5 / 1 / 08</u>	<u>7 / 31 / 08</u>
4.3 Construction:	<u>8 / 1 / 08</u>	<u>10 / 1 / 08</u>
4.4 Right-of-Way/Land Acquisition:	<u> / / </u>	<u> / / </u>

* Failure to meet project schedule may result in termination of agreement for approved projects. Modification of dates must be requested in writing by the CEO of record and approved by the commission once the Project Agreement has been executed. The project schedule should be planned around receiving a Project Agreement on or about July 1st.

5.0 APPLICANT INFORMATION:

5.1	CHIEF EXECUTIVE OFFICER	<u>Scott Stiles</u>
	TITLE	<u>Assistant City Manager</u>
	STREET	<u>Room 104, City Hall</u>
		<u>801 Plum Street</u>
	CITY/ZIP	<u>Cincinnati, Ohio 45202</u>
	PHONE	<u>(513) 352-3475</u>
	FAX	<u>(513) 352-2458</u>
	E-MAIL	
5.2	CHIEF FINANCIAL OFFICER	<u>Joe Gray</u>
	TITLE	<u>Finance Director</u>
	STREET	<u>Room 250, City Hall</u>
		<u>801 Plum Street</u>
	CITY/ZIP	<u>Cincinnati, Ohio 45202</u>
	PHONE	<u>(513) 352-5372</u>
	FAX	
	E-MAIL	
5.3	PROJECT MANAGER	<u>Don Gindling</u>
	TITLE	<u>Principal Construction Engineer</u>
	STREET	<u>Room 450, City Hall</u>
		<u>801 Plum Street</u>
	CITY/ZIP	<u>Cincinnati, Ohio 45202</u>
	PHONE	<u>(513) 352-1518</u>
	FAX	
	E-MAIL	

Changes in Project Officials must be submitted in writing from the CEO.

6.0 ATTACHMENTS/COMPLETENESS REVIEW:

Confirm in the blocks [] below that each item listed is attached.

- [] A certified copy of the legislation by the governing body of the applicant authorizing a designated official to sign and submit this application and execute contracts. This individual should sign under 7.0, Applicant Certification, below.
- [X] A certification signed by the applicant's chief financial officer stating all local share funds required for the project will be available on or before the dates listed in the Project Schedule section. If the application involves a request for loan (RLP or SCIP), a certification signed by the CFO which identifies a specific revenue source for repaying the loan also must be attached. Both certifications can be accomplished in the same letter.
- [X] A registered professional engineer's detailed cost estimate and useful life statement, as required in 164-1-13, 164-1-14, and 164-1-16 of the Ohio Administrative Code. Estimates shall contain an engineer's original seal or stamp and signature.
- [] A cooperation agreement (if the project involves more than one subdivision or district) which identifies the fiscal and administrative responsibilities of each participant.
- [] Projects which include new and expansion components and potentially affect productive farmland should include a statement evaluating the potential impact. If there is a potential impact, the Governor's Executive Order 98-VII and the OPWC Farmland Preservation Review Advisory apply.
- [] Capital Improvements Report: (Required by O.R.C. Chapter 164.06 on standard form)
- [X] Supporting Documentation: Materials such as additional project description, photographs, economic impact (temporary and/or full time jobs likely to be created as a result of the project), accident reports, impact on school zones, and other information to assist your district committee in ranking your project. Be sure to include supplements, which may be required by your *local* District Public Works Integrating Committee.

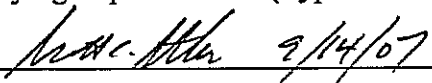
7.0 APPLICANT CERTIFICATION:

The undersigned certifies that: (1) he/she is legally authorized to request and accept financial assistance from the Ohio Public Works Commission; (2) to the best of his/her knowledge and belief, all representations that are part of this application are true and correct; (3) all official documents and commitments of the applicant that are part of this application have been duly authorized by the governing body of the applicant; and, (4) should the requested financial assistance be provided, that in the execution of this project, the applicant will comply with all assurances required by Ohio Law, including those involving Buy Ohio and prevailing wages.

Applicant certifies that physical construction on the project as defined in the application has NOT begun, and will not begin until a Project Agreement on this project has been executed with the Ohio Public Works Commission. Action to the contrary will result in termination of the agreement and withdrawal of Ohio Public Works Commission funding of the project.

Scott Stiles, Assistant City Manager

Certifying Representative (Type or Print Name and Title)

 2/14/07
Signature/Date Signed

September 10, 2007

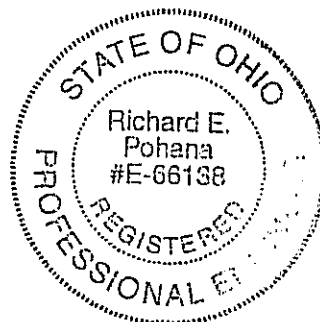
Subject: Elberon Avenue Landslide Correction
Certification of Useful Life for OPWC Projects

As required by Chapter 164-1-13 of the Ohio Administrative Code, I hereby certify that the design useful life of the subject landslide correction is at least seventy-five (75) years.

(seal)



Richard E. Pohana, P.E.
Supervising Geotechnical Engineer
City of Cincinnati

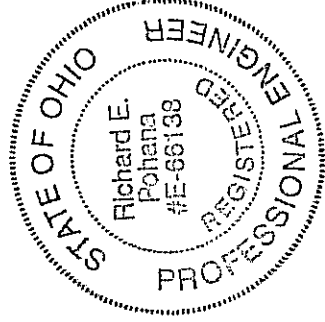


Engineer's Estimate
Elberon Avenue Rockfall Protection

Ref No	Item No	Item Description	Units	Estimated Quantity	Estimated Unit Price	Estimated Contract Cost
1	103.05	Premium for Contract Performance Bond	Lump Sum	1.00	\$2,650.00	\$2,650.00
2	109.051	Contract Contingency	Lump Sum	1.00	\$5,000.00	\$5,000.00
3	201	Clearing & Grubbing	Lump Sum	1.00	\$1,000.00	\$1,000.00
4	202	Precast Traffic Divider Removed	Ea.	28.00	\$60.00	\$1,680.00
5	202	Raised Pavement Markers Removed	Ea.	175.00	\$8.00	\$1,400.00
6	203	Excavation	Cu. Yds.	300.00	\$30.00	\$9,000.00
7	511	Class C Concrete	Cu. Yds.	65.00	\$150.00	\$9,750.00
8	621	Raised Pavement Markers	Ea.	176.00	\$35.00	\$6,160.00
9	626	Barrier Reflectors	Ea.	26.00	\$10.00	\$260.00
10	643	Center Line	Mile	0.50	\$4,500.00	\$2,250.00
11	643	Lane Line	Mile	0.50	\$1,500.00	\$750.00
12	643	Edge Line	Mile	1.00	\$1,500.00	\$1,500.00
13	603	6" Conduit, Type C	Lin. Ft.	750.00	\$10.00	\$7,500.00
14	614	Maintaining Traffic	Lump Sum	1.00	\$15,000.00	\$15,000.00
15	659	Seeding and Mulching	Sq. Yds.	250.00	\$3.00	\$750.00
16	Special	Free-Standing Wall	Sq. Ft.	4750.00	\$30.00	\$142,500.00
17	Special	Leveling Base	Cu. Yds.	85.00	\$100.00	\$8,500.00
18	Special	Geogrid	Sq. Yds.	150.00	\$10.00	\$1,500.00
19	Special	Project Sign	Ea.	1.00	\$600.00	\$600.00

Total

\$217,750.00



A handwritten signature in dark ink, appearing to read "Richard E. Pohana".

Richard E. Pohana
Geotechnical Engineer

City of Cincinnati



Department of Finance

Suite 250, City Hall
801 Plum Street
Cincinnati, Ohio 45202
Phone (513) 352-3731
Fax (513) 352-2370

Joe Gray
Director

September 14, 2007

W. Laurence Bicking, Director
Ohio Public Works Commission
65 East State Street, Suite 312
Columbus, Ohio 43215-4213

Re: **Status of Funds for Local Share
Round 22 SCIP/LTIP Project Grants**

Dear Mr. Bicking:

The City of Cincinnati's share of the following Round 22 SCIP/LTIP projects are recommended for funding in the City's Capital Improvement Program:

Street Improvement Projects

HAM-US 27-6.29 (Colerain/West Fork/Virginia Intersection Improvement)

Improve safety for users of the intersection of Colerain Avenue, West Fork Road and Virginia Avenue and the intersection of Chase and Virginia Avenues intersection.

Hamilton Avenue Improvements – Phase 2 (Ashtree Drive to Windermere Way)

Improve safety for users of Hamilton Avenue by widening existing lanes and adding left turn lanes at major intersections.

Bridge Replacement Project

Center Hill Avenue Bridge over the Mill Creek

Replace the existing deteriorated bridge over the Mill Creek with a new structure.

Street Improvement/Bridge Replacement Project

Spring Grove Avenue / Clifton Bridge Improvements

Replace the existing Clifton Avenue Bridge over the Mill Creek with a wider structure. Widen Clifton Avenue to permit a southbound left turn lane onto Kenard. Realign curbs, reconstruct signal, and rehabilitate Spring Grove Avenue between Winton Road and Mitchell Avenue.

Landslide Correction/Street Rehabilitation Project

Clifton Avenue / West Clifton Avenue Improvements

Construct new retaining walls on Clifton Avenue to stabilize the hillside above the roadway in the vicinity of Zier Place. Rehabilitate West Clifton Avenue from Calhoun Street to West McMillan Street, and Clifton Avenue from West McMillan Street to Vine Street.

HAMILTON COUNTY
ENGINEERS
PERMIT DEPARTMENT
2007 SEP 21 PM 1:19

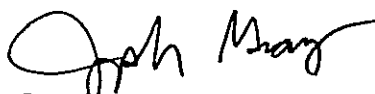
Landslide Correction Project
Elberon Avenue Landslide Correction

Construct new retaining walls on Elberon Avenue to stabilize the hillside above the roadway between Purcell Avenue and Mount Hope Road.

The City Manager is committed to including the local funding needed to complete the project financing in the City's Capital Improvement Program. Sources of local funding for the City's Capital Improvement Program include dedicated revenue from the City's Earnings Tax, Southern Railway Lease proceeds, Bond proceeds, and Municipal Road Funds. The Ohio Department of Transportation and the Federal Highway Administration through the Ohio-Kentucky-Indiana Regional Council of Governments have also committed funding to help make a number of these projects possible.

If you have any questions or need additional information regarding project financing, please contact me at (513) 352-6275.

Sincerely,



Joe Gray, Director
Department of Finance

cc: Scott Stiles, Assistant City Manager
Joe Gray, Acting Director, Finance
Eileen Enabnit, Director, Transportation and Engineering
Lea Carroll, Manager, Budget and Evaluation
Don Rosemeyer, Transportation and Engineering
Joe Vogel, Transportation and Engineering
Greg Long, Transportation and Engineering
Dick Cline, Transportation and Engineering

EMERGENCY

City of Cincinnati

An Ordinance No. 375 - 2007

DWA *[Signature]*
- 2007

AUTHORIZING the City Manager to apply for and accept bridge replacement, bridge reconstruction, and street improvement funding grants, and water supply facility improvement loans and loan assistance from the State of Ohio Public Works Commission, in the approximate amount of \$11,542,884.00, and to execute any agreements necessary for the receipt and administration of said grants, loans, and loan assistance.

WHEREAS, the State Capital Improvement Program, the Local Transportation Improvement Program, and the State Revolving Loan Program provide for infrastructure funding; and

WHEREAS, the District 2 Integrating Committee is accepting applications for projects within Hamilton County, State of Ohio; and

WHEREAS, the City of Cincinnati has the required \$4,030,217.00 in matching City funds for Program Year 2008, for three (3) street improvement projects, namely Vine Street from Nixon Street to Erckenbrecher Avenue (previously approved for Round 22 funds), Hamilton Avenue Improvements – Phase 2, and the Colerain/West Fork/Virginia Intersection Improvement (HAM-27-6.49); one (1) street improvement/rehabilitation and landslide correction project, namely Clifton/West Clifton Avenue Improvements; one (1) landslide correction project, namely Elberon Avenue Landslide Correction; one (1) street improvement/bridge replacement, namely Spring Grove Avenue/Clifton Avenue Bridge Improvement; one (1) bridge replacement project, namely Center Hill Avenue Bridge over Millcreek; one (1) bridge reconstruction project, namely Eighth Street Viaduct (previously approved for Round 22 funds); and one (1) loan assistance application for the Countywide Water Main Replacement Project – Phase VI; now, therefore,

BE IT ORDAINED by the Council of the City of Cincinnati, State of Ohio:

Section 1. That the City Manager is hereby authorized to execute and file applications, on behalf of the City of Cincinnati, with the Ohio Public Works Commission through the Hamilton County District 2 Integrating Committee, for grants, loan assistance, and loans at an interest rate acceptable to the City of Cincinnati Director of Finance in the approximate amount of \$11,542,884.00 for funding three (3) street improvement projects, namely Vine Street from Nixon Street to Erckenbrecher Avenue (previously approved for Round 22 funds), Hamilton Avenue Improvements – Phase 2, and the Colerain/West Fork/Virginia Intersection

Improvement (HAM-27-6.49); one (1) street improvement/rehabilitation and landslide correction project, namely Clifton/West Clifton Avenue Improvements; one (1) landslide correction project, namely Elberon Avenue Landslide Correction; one (1) street improvement/bridge replacement, namely Spring Grove Avenue/Clifton Avenue Bridge Improvement; one (1) bridge replacement project, namely Center Hill Avenue Bridge over Millcreek; one (1) bridge reconstruction project, namely Eighth Street Viaduct (previously approved for Round 22 funds); and one (1) loan assistance application for the Countywide Water Main Replacement Project – Phase VI.

Section 2. That the City Manager is hereby authorized to accept such grants, loan assistance, and loans at an interest rate acceptable to the City of Cincinnati Director of Finance, if awarded by the Ohio Public Works Commission.

Section 3. That the City Manager is hereby authorized to execute such agreements and other documents as may be required by the State for receipt and administration of the above grants, loan assistance, and loans.

Section 4. That, if the Ohio Public Works Commission approves the credit enhancements and loans, the Director of Finance is hereby directed to deposit said funds in the appropriate accounts. The Director of Finance is further authorized to disburse said funds upon receipt of the proper vouchers.

Section 5. That this ordinance shall be an emergency measure necessary for the preservation of the public peace, health, safety and general welfare and shall, subject to the terms of Article II, Section 6 of the Charter, be effective immediately. The reason for the

emergency is the immediate need to ensure acceptance of the grant applications and to ensure proper funding mechanisms are in place at the earliest possible time.

Passed: October 24, 2007

Attest: Brenda Williams
Acting Clerk

[Signature]
Mayor

I HEREBY CERTIFY THAT ORDINANCE NO 375
WAS PUBLISHED IN THE CITY BULLETIN
IN ACCORDANCE WITH THE CHARTER ON 11-6-2007
[Signature]
CLERK OF COUNCIL

CERTIFICATION OF TRAFFIC COUNT

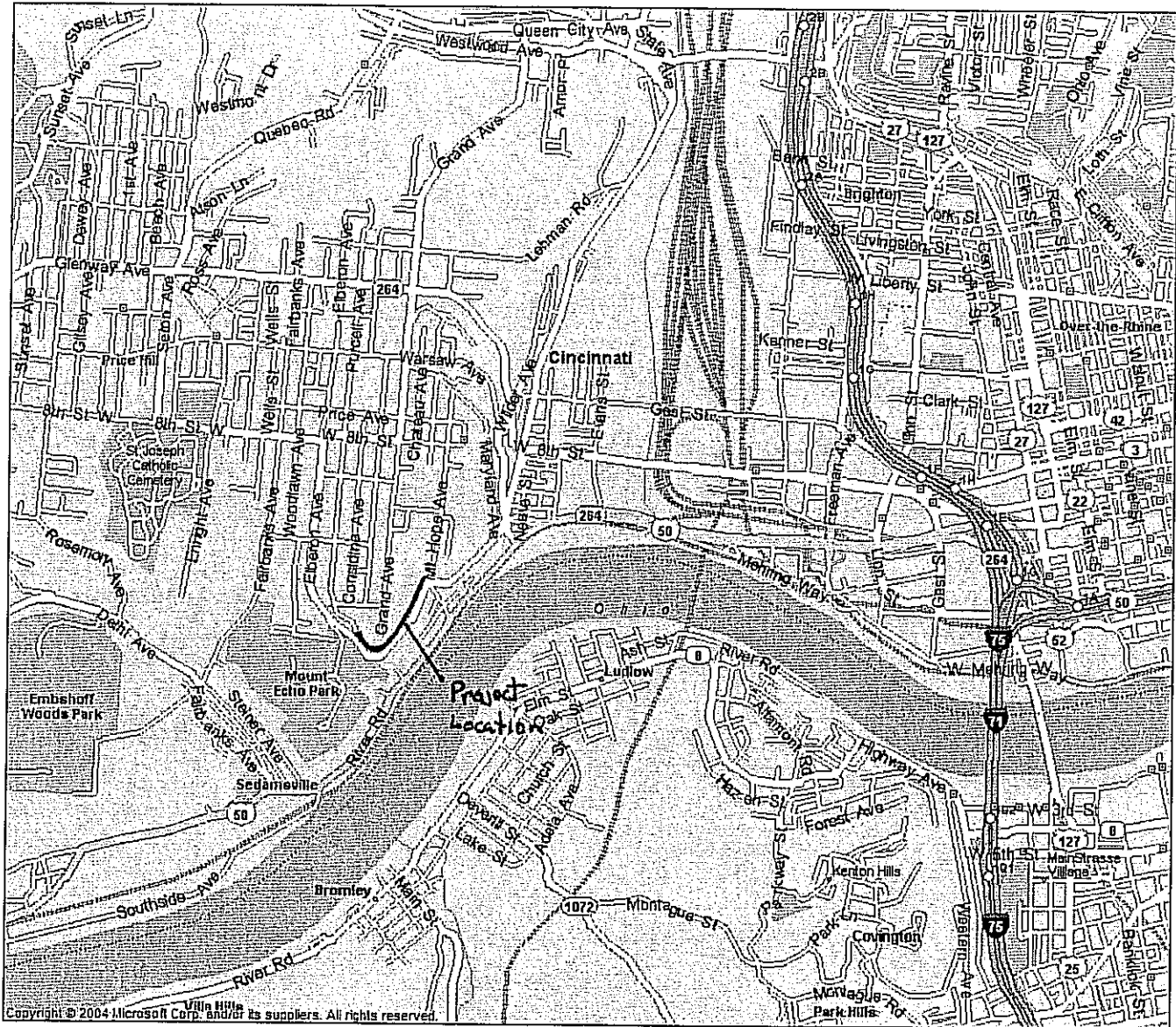
As required by the District 2 Integrating Committee, I hereby certify that the traffic counts herein attached to the **Elberon Avenue Landslide Correction** project application are a true and accurate count done by the City of Cincinnati's Traffic Engineering Division.

Stephen I. Niemeier

Stephen I. Niemeier, P.E.
Principal Traffic Engineer



Elberon Avenue Rockfall Protection-Location Map



ADDITIONAL SUPPORT INFORMATION

Elberon Avenue Rockfall Protection

For Program Year 2008 (July 1, 2008 through June 30, 2009), jurisdictions shall provide the following support information to help determine which projects will be funded. Information on this form must be accurate, and where called for, based on sound engineering principles. Documentation to substantiate the individual items, as noted, is required. The applicant should also use the rating system and its' addendum as a guide. The examples listed in this addendum are not a complete list, but only a small sampling of situations that may be relevant to a given project.

IF YOU ARE APPLYING FOR A GRANT, WILL YOU BE WILLING TO ACCEPT A LOAN IF ASKED BY THE DISTRICT? _____ YES X NO (ANSWER REQUIRED)

Note: Answering "Yes" will not increase your score and answering "NO" will not decrease your score.

1) What is the physical condition of the existing infrastructure that is to be replaced or repaired?

Give a statement of the nature of the deficient conditions of the present facility exclusive of capacity, serviceability, health and/or safety issues. If known, give the approximate age of the infrastructure to be replaced, repaired, or expanded. Use documentation (if possible) to support your statement. Documentation may include (but is not limited to): ODOT BR86 reports, pavement management condition reports, televised underground system reports, age inventory reports, maintenance records, etc., and will only be considered if included in the original application. Examples of deficiencies include: structural condition; substandard design elements such as widths, grades, curves, sight distances, drainage structures, etc.

Deficiencies: The ground surface slopes upward from Elberon Avenue at 1 to 1.5 horizontal to 1 vertical for approximately 30 to 60 vertical feet. This cut slope was made during the original construction of Elberon Avenue. On-going sloughing and rockfalls on the slopes above Elberon Avenue between Mt. Hope Avenue and Purcell Avenue have created safety and stability concerns. The sloughing of the slopes has deposited significant quantities of materials onto the roadway during periods of high precipitation. Rockfalls are a common occurrence throughout the year. Although the bedrock exposed in the slope is stable with regards to a deep-seated failure, weathering and erosion deteriorates the shale into a soil-like material which is not stable on these slope. The shale below the limestone layers will continue to weather, soften and slough, and allow small to significantly large pieces of limestone to fall down the slope and onto the roadway.

The cut slope is and has been in critical condition which requires partial reconstruction of the slope to maintain its integrity. At the request of the City, the Elberon Avenue cut slope was evaluated in 1992 by a geotechnical consultant G. J. Thelen & Associates, Inc. (included with submittal). Several methods to protect Elberon Avenue were presented in the report. The recommended option, the installation of a barrier wall, is the selected option. This alternative was not constructed earlier because the construction of a barrier wall would have hindered the removal of debris from behind the wall. The City has had recent success and experience with a relatively new large block modular wall (manufactured by Redi-Rock International), which can be easily dismantled and reassembled to allow for clearing debris from behind the wall. An example of this wall can be viewed on Radcliff Road off of Lehman Road in Cincinnati, Ohio (photographs included with submittal).

Photographs, newspaper articles and service requests which document several occurrences of earthflows, (mudslides) are attached. This information is only a representative sample of the incidences and is not inclusive of all the times that the City has responded at this location.

Solution: This project will prevent rocks from falling onto the roadway by constructing a permanent barrier wall behind the existing curb. The permanent barrier wall will be able to withstand rock impacts, debris flows and be removable to allow for periodic clearing of debris from behind the wall. Travel lanes will be shifted away from the hillside. The number of lanes will remain the same. The shift will allow for the creation of a buffer zone between the proposed wall and the outbound curb lane.

2) How important is the project to the safety of the Public and the citizens of the District and/or service area?

Give a statement of the projects effect on the safety of the service area. The design of the project is intended to reduce existing accident rate, promote safer conditions, and reduce the danger of risk, liability or injury. (Typical examples may include the effects of the completed project on accident rates, emergency response time, fire protection, and highway capacity.) Please be specific and provide documentation if necessary to substantiate the data. The applicant must demonstrate the type of problems that exist, the frequency and severity of the problems and the method of correction.

Safety Problem: The rocks which fall onto the roadway are of significant size and are extremely hazardous not only from being struck during a fall but from creating an obstacle within the travel lane. Rapid earthflows slide into and block the travel lane during periods of high precipitation. Removal of the hazard does not occur until after the rock or soil is within the roadway and only after it has been reported.

Solution: This project will prevent rocks from falling onto the roadway by constructing a permanent barrier wall behind the existing curb. The permanent barrier wall will have be able to withstand rock impacts, debris flows and be removable to allow for periodic clearing of debris from behind the wall. Travel lanes will be shifted away from the hillside. The number of lanes will remain the same. The shift will allow for the creation of a buffer zone between the proposed wall and the outbound curb lane.

3) How important is the project to the health of the Public and the citizens of the District and/or service area?

Give a statement of the projects effect on the health of the service area. The design of the project will improve the overall condition of the facility so as to reduce or eliminate potential for disease, or correct concerns regarding the environmental health of the area. (Typical examples may include the effects of the completed project by improving or adding storm drainage or sanitary facilities, replacing lead jointed water lines, etc.). Please be specific and provide documentation if necessary to substantiate the data. The applicant must demonstrate the type of problems that exist, the frequency and severity of the problems and the method of correction.

The project will have minimal impact on the health of the service area.

4) Does the project help meet the infrastructure repair and replacement needs of the applying jurisdiction?

The jurisdiction must submit a listing in priority order of the projects for which it is applying. Points will be awarded on the basis of most to least importance.

Priority 1 Clifton/West Clifton Avenue Improvements

Priority 2 Spring Grove/Clifton Avenue Improvements

Priority 3 Elberon Avenue Landslide Improvements

Priority 4 Colerain/Westfork/Virginia Improvements

Priority 5 Hamilton Avenue Phase 2 Improvements

5) To what extent will the user fee funded agency be participating in the funding of the project?

6) Economic Growth – How will the completed project enhance economic growth

Give a statement of the projects effect on the economic growth of the service area (be specific).

7) Matching Funds - LOCAL

The information regarding local matching funds is to be filed by the applicant in Section 1.2 (b) of the Ohio Public Works Association's "Application For Financial Assistance" form.

8) Matching Funds - OTHER

The information regarding local matching funds is to be filed by the applicant in Section 1.2 (c) of the Ohio Public Works Association's "Application For Financial Assistance" form. If MRF funds are being used for matching funds, the MRF application must have been filed by August 31st of this year for this project with the Hamilton County Engineer's Office. List below all "other" funding the source(s).

9) Will the project alleviate serious capacity problems or respond to the future level of service needs of the district?

Describe how the proposed project will alleviate serious capacity problems (be specific).

The project is designed for current demand.

For roadway betterment projects, provide the existing and proposed Level of Service (LOS) of the facility using the methodology outlined within AASHTO'S "Geometric Design of Highways and Streets" and the 1985 Highway Capacity Manual.

Existing LOS _____ Proposed LOS _____

If the proposed design year LOS is not "C" or better, explain why LOS "C" cannot be achieved.

10) If SCIP/LTIP funds were granted, when would the construction contract be awarded?

If SCIP/LTIP funds are awarded, how soon after receiving the Project Agreement from OPWC (tentatively set for July 1 of the year following the deadline for applications) would the project be under contract? The Support Staff will review status reports of previous projects to help judge the accuracy of a jurisdiction's anticipated project schedule.

Number of months 1

- a.) Are preliminary plans or engineering completed? Yes X No _____ N/A _____
- b.) Are detailed construction plans completed? Yes _____ No X N/A _____
- c.) Are all utility coordination's completed? Yes _____ No X N/A _____
- d.) Are all right-of-way and easements acquired (if applicable)? Yes _____ No _____ N/A X

If no, how many parcels needed for project? 0 Of these, how many are: Takes _____

Temporary _____

Permanent _____

For any parcels not yet acquired, explain the status of the ROW acquisition process for this project.

e.) Give an estimate of time needed to complete any item above not yet completed. 3 Months.

11) Does the infrastructure have regional impact?

Give a brief statement concerning the regional significance of the infrastructure to be replaced, repaired, or expanded.

Elberon Avenue is classified as a principal arterial, carries 15,399 vehicles per day and serves as a major connector between the west side neighborhoods and downtown Cincinnati. The project has been requested by the Price Hill Community Council. The project will provide a sense of security when traveling the road.

12) What is the overall economic health of the jurisdiction?

The District 2 Integrating Committee predetermines the jurisdiction's economic health. The economic health of a jurisdiction may periodically be adjusted when census and other budgetary data are updated.

13) Has any formal action by a federal, state, or local government agency resulted in a partial or complete ban of the usage or expansion of the usage for the involved infrastructure?

Describe what formal action has been taken which resulted in a ban of the use of or expansion of use for the involved infrastructure? Typical examples include weight limits, truck restrictions, and moratoriums or limitations on issuance of building permits, etc. The ban must have been caused by a structural or operational problem to be considered valid. Submission of a copy of the approved legislation would be helpful.

No Ban

Will the ban be removed after the project is completed? Yes _____ No _____ N/A _____

14) What is the total number of existing daily users that will benefit as a result of the proposed project?

For roads and bridges, multiply current Average Daily Traffic (ADT) by 1.20. For inclusion of public transit, submit documentation substantiating the count. Where the facility currently has any restrictions or is partially closed, use documented traffic counts prior to the restriction. For storm sewers, sanitary sewers, water lines, and other related facilities, multiply the number of households in the service area by 4. User information must be documented and certified by a professional engineer or the jurisdictions' C.E.O.

Traffic: ADT 15,399 X 1.20 = 18,479 Users

Water/Sewer: Homes _____ X 4.00 = _____ Users

15) Has the jurisdiction enacted the optional \$5 license plate fee, an infrastructure levy, a user fee, or dedicated tax for the pertinent infrastructure?

The applying jurisdiction shall list what type of fees, levies or taxes they have dedicated toward the type of infrastructure being applied for. (Check all that apply)

Infrastructure Levy	<u>X</u>	Specify type	<u>Dedicated portion of City earnings tax.</u>
Facility Users Fee	<u> </u>	Specify type	<u> </u>
Dedicated Tax	<u> </u>	Specify type	<u> </u>
Other Fee, Levy or Tax	<u> </u>	Specify type	<u> </u>

Facility Users Fee _____ Specify type _____

Dedicated Tax _____ Specify type _____

Other Fee, Levy or Tax _____ Specify type _____

**SCIP/LTIP PROGRAM
ROUND 22 - PROGRAM YEAR 2008
PROJECT SELECTION CRITERIA
JULY 1, 2008 TO JUNE 30, 2009**

NAME OF APPLICANT: City of Cincinnati
NAME OF PROJECT: Elberon Ave. Rockfall Protection
RATING TEAM: 5

General Statement for Rating Criteria

Points awarded for all items will be based on engineering experience, field verification, application information and other information supplied by the applying agency, which is deemed to be relevant by the Support Staff. The examples listed in this addendum are not a complete list, but only a small sampling of situations that may be relevant to a given project.

CIRCLE THE APPROPRIATE RATING

1) What is the physical condition of the existing infrastructure that is to be replaced or repaired?

- 25 - Failed
- 23 - Critical
- 20 - Very Poor
- 17 - Poor
- ☒ 15 - Moderately Poor
- 10 - Moderately Fair
- 5 - Fair Condition
- 0 - Good or Better

*PROJECT IS NOT
ADDRESSING STABILITY OF
HILLSIDE PER SE.*

Appeal Score

15 0

*PROJECT DOES NOT FIX
PROBLEM.*

Criterion 1 - Condition

Condition of the particular infrastructure to be repaired, reconstructed or replaced shall be a measure of the degree of reduction in condition from its original state. Historic pavement management data based on ASTM D6433-99 rating system may be submitted as documentation. Capacity, serviceability, safety and health shall not be considered in this criterion. Any documentation the Applicant wishes to be considered must be included in the application package.

Definitions:

Failed Condition - requires complete reconstruction where no part of the existing facility is salvageable. (E.g. Roads: complete reconstruction of roadway, curbs and base; Bridges: complete removal and replacement of bridge; Underground: removal and replacement of an underground drainage or water system.)

Critical Condition - requires partial reconstruction to maintain integrity. (E.g. Roads: reconstruction of roadway/curbs can be saved; Bridges: removal and replacement of bridge with abutment modification; Underground: removal and replacement of part of an underground drainage or water system.)

Very Poor Condition - requires extensive rehabilitation to maintain integrity. (E.g. Roads: extensive full depth, partial depth and curb repair of a roadway with a structural overlay; Bridges: superstructure replacement; Underground: repair of joints and/or replacement of pipe sections.)

Poor Condition - requires standard rehabilitation to maintain integrity. (E.g. Roads: moderate full depth, partial depth and curb repair to a roadway with no structural overlay needed or structural overlay with minor repairs to a roadway needed; Bridges: extensive patching of substructure and replacement of deck; Underground: insituform or other in ground repairs.)

Moderately Poor Condition - requires minor rehabilitation to maintain integrity. (E.g. Roads: minor full depth, partial depth or curb repairs to a roadway with either a thin overlay or no overlay needed; Bridges: major structural patching and/or major deck repair.)

Moderately Fair Condition - requires extensive maintenance to maintain integrity. (E.g. Roads: thin or no overlay with extensive crack sealing, minor partial depth and/or slurry or rejuvenation; Bridges: minor structural patching, deck repair, erosion control.)

Fair Condition - requires routine maintenance to maintain integrity. (E.g. Roads: slurry seal, rejuvenation or routine crack sealing to the roadway; Bridges: minor structural patching.)

Good or Better Condition - little to no maintenance required to maintain integrity.

Note: If the infrastructure is in "good" or better condition, it will NOT be considered for SCIP/LTIP funding unless it is an expansion project that will improve serviceability.

2) How important is the project to the safety of the Public and the citizens of the District and/or service area?

- 25 - Highly significant importance
- 20 - Considerably significant importance
- 15 - Moderate importance
- ☒ 10 - Minimal importance
- 5 - Poorly documented importance
- 0 - No measurable impact

Appeal Score

10 20

*NO DOCUMENTATION
AS TO SEVERITY &
FREQUENCY. LAST
CITED LANDSLIDE 1973*

Criterion 2 – Safety

The applying agency shall include in its application the type frequency, and ~~severity of the safety problem deficiency~~ that currently exists and how the intended project would improve the situation. For example, have there been vehicular accidents attributable to the problems cited? Have they involved injuries or fatalities? In the case of water systems, are existing hydrants non-functional? In the case of water lines, is the present capacity inadequate to provide volumes or pressure for adequate fire protection? **In all cases, specific documentation is required.** Mentioned problems, which are poorly documented, ~~shall~~ generally will not receive more than 5 points.

Note: Each project is looked at on an individual basis to determine if any aspects of this category apply. Examples given above are NOT intended to be exclusive.

3) How important is the project to the health of the Public and the citizens of the District and/or service area?

- 25 - Highly significant importance
- 20 - Considerably significant importance
- 15 - Moderate importance
- 10 - Minimal importance
- 5 - Poorly documented importance
- ☒ 0 - No measurable impact

Appeal Score

Criterion 3 – Health

The applying agency shall include in its application the type, frequency, and severity of the health problem that would be eliminated or reduced by the intended project. For example, can the problem be eliminated only by the project, or would routine maintenance be satisfactory? If basement flooding has occurred, was it storm water or sanitary flow? What complaints if any are recorded? In the case of underground improvements, how will they improve health if they are storm sewers? How would improved sanitary sewers improve health or reduce health risk? **In all cases, quantified documentation is required.** Mentioned problems, which are poorly documented, ~~shall~~ generally will not receive more than 5 points.

Note: Each project is looked at on an individual basis to determine if any aspects of this category apply. Examples given above are NOT intended to be exclusive.

4) Does the project help meet the infrastructure repair and replacement needs of the applying agency?

Note: Applying agency's priority listing (part of the Additional Support Information) must be filed with application(s).

- 25 - First priority project
- 20 - Second priority project
- ☒ 15 - Third priority project
- 10 - Fourth priority project
- 5 - Fifth priority project or lower

Appeal Score

Criterion 4 – Jurisdiction's Priority Listing

The applying agency must submit a listing in priority order of the projects for which it is applying. Points will be awarded on the basis of most to least importance. The form is included in the Additional Support Information.

5) To what extent will a user fee funded agency be participating in the funding of the project?

10 – Less than 10%

9 – 10% to 19.99%

8 – 20% to 29.99%

7 – 30% to 39.99%

6 – 40% to 49.99%

5 – 50% to 59.99%

4 – 60% to 69.99%

3 – 70% to 79.99%

2 – 80% to 89.99%

1 – 90% to 95%

0 – Above 95%

Appeal Score

Criterion 5 – User Fee-funded Agency Participation

To what extent will a user fee funded agency be participating in the funding of the project? (Example: rates for water or sewer, frontage assessments, etc.). The applying agency must submit documentation.

6) Economic Growth – How the completed project will enhance economic growth (See definitions).

10 – The project will directly secure new employment

Appeal Score

5 – The project will permit more development

0 – The project will not impact development

Criterion 6 – Economic Growth

Will the completed project enhance economic growth and/or development in the service area?

Definitions:

Secure new employment: The project as designed will secure development/employers, which will immediately add new permanent employees to the jurisdiction. The applying agency must submit details.

Permit more development: The project as designed will permit additional business development/employment. The applying agency must supply details.

The project will not impact development: The project will have no impact on business development.

Note: Each project is looked at on an individual basis to determine if any aspects of this category apply.

7) Matching Funds - **LOCAL**

10 - This project is a loan or credit enhancement

10 – 50% or higher

8 – 40% to 49.99%

6 – 30% to 39.99%

4 – 20% to 29.99%

2 – 10% to 19.99%

0 – Less than 10%

List total percentage of "Local" funds _____%

Criterion 7 – Matching Funds – Local

The percentage of matching funds which come directly from the budget of the applying agency. Ten points shall be awarded if a loan request is at least 50% of the total project cost. (If the applying agency is not a user fee funded agency, any funds to be provided by a user fee generating agency will be considered "Matching Funds – Other").

3) Matching Funds – **OTHER**List total percentage of "Other" funds 0 %

- 10 – 50% or higher
 8 – 40% to 49.99%
 6 – 30% to 39.99%
 4 – 20% to 29.99%
 2 – 10% to 19.99%
 1 – 1% to 9.99%
0 – Less than 1%

List below each funding source and percentage

_____	_____ %
_____	_____ %
_____	_____ %
_____	_____ %
_____	_____ %

Criterion 8 – Matching Funds - Other

The percentage of matching funds that come from funding sources other than those mentioned in Criterion 7. A letter from the outside funding agency stating their financial participation in the project and the amount of funding is required to receive points. For MRF, a copy of the current application form filed with the Hamilton County Engineer's Office meets the requirement.

9) Will the project alleviate serious capacity problems or hazards or respond to the future level of service needs of the district?

- 10 - Project design is for future demand.
 8 - Project design is for partial future demand.
 6 - Project design is for current demand.
 4 - Project design is for minimal increase in capacity.
2 - Project design is for no increase in capacity.

Appeal Score

Criterion 9 – Alleviate Capacity Problems

The applying agency shall provide a narrative, along with pertinent support documentation, which describe the existing deficiencies and showing how congestion will be reduced or eliminated and how service will be improved to meet the needs of any expected growth or development. A formal capacity analysis accompanying the application would be beneficial. Projected traffic or demand should be calculated as follows:

Formula:Existing users x design year factor = projected users

<u>Design Year</u>	<u>Design year factor</u>		
	<u>Urban</u>	<u>Suburban</u>	<u>Rural</u>
20	1.40	1.70	1.60
10	1.20	1.35	1.30

Definitions:

Future demand – Project will eliminate existing congestion or deficiencies and will provide sufficient capacity or service for twenty-year projected demand or fully developed area conditions. Justification must be supplied if the area is already largely developed or undevelopable and thus the projection factors used deviate from the above table.

Partial future demand – Project will eliminate existing congestion or deficiencies and will provide sufficient capacity or service for ten-year projected demand or partially developed area conditions. Justification must be supplied if the area is already largely developed or undevelopable and thus the projection factors used deviate from the above table.

Current demand – Project will eliminate existing congestion or deficiencies and will provide sufficient capacity or service only for existing demand and conditions.

Minimal increase – Project will reduce but not eliminate existing congestion or deficiencies and will provide a minimal but less than sufficient increase in existing capacity or service for existing demand and conditions.

No increase – Project will have no effect on existing congestion or deficiencies and provide no increase in capacity or service for existing demand and conditions.

10) Readiness to Proceed - If SCIP/LTIP funds are granted, when would the construction contract be awarded?

5 - Will be under contract by December 31, 2008 and no delinquent projects in Rounds 19 & 20

3 - Will be under contract by March 31, 2009 and/or one delinquent project in Rounds 19 & 20

0 - Will not be under contract by March 31, 2009 and/or more than one delinquent project in Rounds 19 & 20

Criterion 10 – Readiness to Proceed

The Support Staff will assign points based on engineering experience and status of design plans. A project is considered delinquent when it has not received a notice to proceed within the time stated on the original application and no time extension has been granted by the OPWC. An applying agency receiving approval for a project and subsequently canceling the same after the bid date on the application will receive zero (0) points under this round and the following round.

11) Does the infrastructure have regional impact? Consider origination and destination of traffic, functional classifications, size of service area, and number of jurisdictions served, etc.

10 – Major Impact

Appeal Score

8 – Significant Impact

6 – Moderate Impact

4 – Minor Impact

2 – Minimal or No Impact

Criterion 11 - Regional Impact

The regional significance of the infrastructure that is being repaired or replaced.

Definitions:

Major Impact – Roads: Major Arterial: A direct connector to an Interstate Highway; Arterials are intended to provide a greater degree of mobility rather than land access. Arterials generally convey large traffic volumes for distances greater than one mile. A major arterial is a highway that is of regional importance and is intended to serve beyond the county. It may connect urban centers with one another and/or with outlying communities and employment or shopping centers. A major arterial is intended primarily to serve through traffic.

Significant Impact – Roads: Minor Arterial: A roadway, also serving through traffic, that is similar in function to a major arterial, but operates with lower traffic volumes, serves trips of shorter distances (but still greater than one mile), and may provide a higher degree of property access than do major arterials.

Moderate Impact – Roads: Major Collector: A roadway that provides for traffic movement between local roads/streets and arterials or community-wide activity centers and carries moderate traffic volumes over moderate distances (generally less than one mile). Major collectors may also provide direct access to abutting properties, such as regional shopping centers, large industrial parks, major subdivisions and community-wide recreational facilities, but typically not individual residences. Most major collectors are also county roads and are therefore through streets.

Minor Impact – Roads: Minor Collector: A roadway similar in functions to a major collector but which carries lower traffic volumes over shorter distances and has a higher degree of property access. Minor collectors may serve as main circulation streets within large, residential neighborhoods. Most minor collectors are also township roads and streets and may, or may not, be through streets.

Minimal or No Impact – Roads: Local: A roadway that is primarily intended to provide access to abutting properties. It tends to accommodate lower traffic volumes, serves short trips (generally within neighborhoods), and provides connections preferably only to collector streets rather than arterials.

2) What is the overall economic health of the jurisdiction?

10 Points

8 Points

6 Points

4 Points

2 Points

Criterion 12 – Economic Health

The District 2 Integrating Committee predetermines the applying agency's economic health. The economic health of a jurisdiction may periodically be adjusted when census and other budgetary data are updated.

3) Has any formal action by a federal, state, or local government agency resulted in a partial or complete ban of the usage or expansion of the usage for the involved infrastructure?

10 - Complete ban, facility closed

Appeal Score

8 - 80% reduction in legal load or 4-wheeled vehicles only

7 - Moratorium on future development, *not* functioning for current demand

6 - 60% reduction in legal load

5 - Moratorium on future development, functioning for current demand

4 - 40% reduction in legal load

2 - 20% reduction in legal load

0 - Less than 20% reduction in legal load

Criterion 13 - Ban

The applying agency shall provide documentation to show that a facility ban or moratorium has been formally placed. The ban or moratorium must have been caused by a structural or operational problem. Points will only be awarded if the end result of the project will cause the ban to be lifted.

4) What is the total number of existing daily users that will benefit as a result of the proposed project?

10 - ~~16,000~~ 30,000 or more

Appeal Score

8 - ~~12,000~~ 21,000 to 29,999 ~~15,999~~

6 - ~~8,000~~ 12,000 to 20,999 ~~11,999~~

4 - ~~4,000~~ 3,000 to 11,999 ~~7,999~~

2 - ~~3,999~~ 2,999 and under

Criterion 14 - Users

The applying agency shall provide documentation. A registered professional engineer or the applying agency's C.E.O must certify the appropriate documentation. Documentation may include current traffic counts, households served, when converted to a measurement of persons. Public transit users are permitted to be counted for the roads and bridges, but only when certifiable ridership figures are provided.

5) Has the applying agency enacted the optional \$5 license plate fee, an infrastructure levy, a user fee, or dedicated tax for the pertinent infrastructure? (*Provide documentation of which fees have been enacted.*)

5 - Two or more of the above

Appeal Score

3 - One of the above

0 - None of the above

Criterion 15 – Fees, Levies, Etc.

The applying agency shall document (in the "Additional Support Information" form) which type of fees, levies or taxes they have dedicated toward the type of infrastructure being applied for.



Begin Lane Shifting @
Mt. Hope Avenue

End Lane Shifting @
Purcell Avenue

End Barrie
Wall

Begin Barrie
Wall

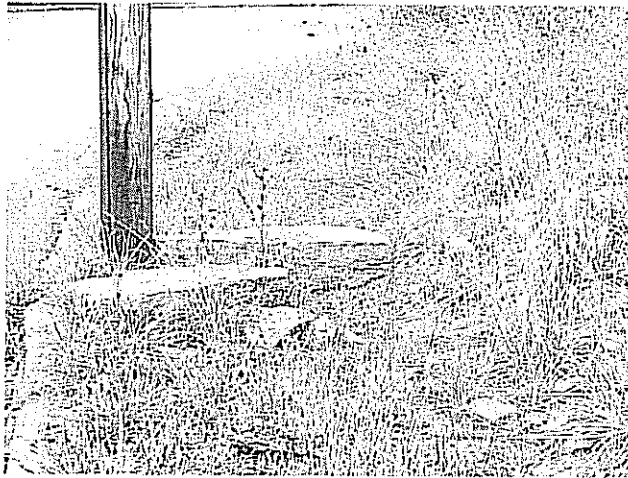
Elberon Avenue Rockfall Protection

Bare areas are earthflow scars showing where soil has slid from hillside. The shale will weather into a soil and once again eventually slide off the hillside.



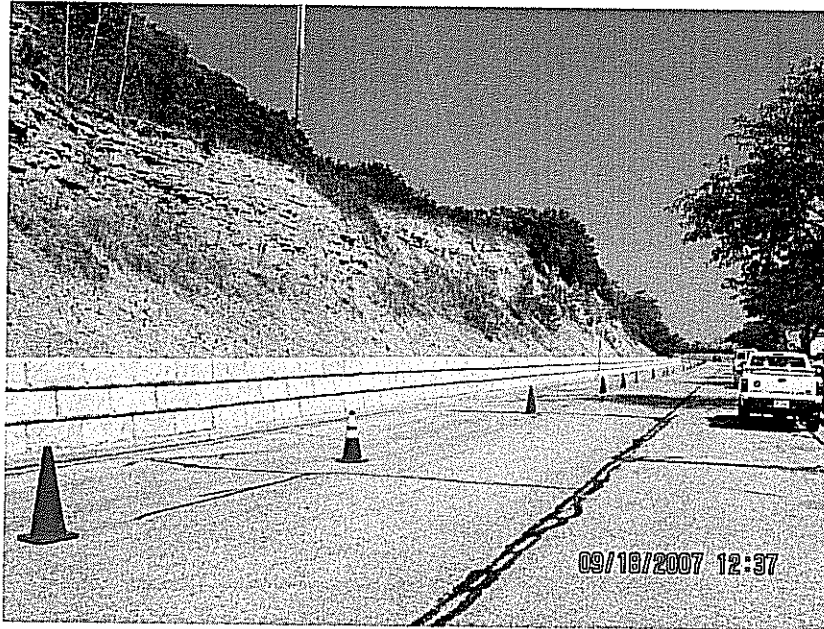
Elberon Avenue Rockfall Protection

Undermining of limestone layers routinely causes rockfalls.



Elberon Avenue Drive Rockfall Protection

An example of the proposed barrier wall for Elberon Avenue is located on Radcliff Drive off of Lehman Road, in Cincinnati Ohio..



Meanwhile, a mass meeting today at President Francois Duvalier's summer home in Arcahaie may provide a preview of inauguration-anniversary celebrations next Wednesday.

Duvalier is slated to deliver the keynote address at today's meeting, but it is uncertain whether he will appear.

Duvalier contends he was re-elected in 1961 for a second six-year term, flanked by

A team of factfinders sent here by the Organization of American States is investigating the causes of tension between Haiti and the Dominican Republic, its neighbor on the island of Hispaniola.

Foreign Minister Rene Chalmers conferred for two hours yesterday with the OAS team. Further talks are expected today.

JFK's Visit Linked To Pope's Health

BY RAYMOND MOSELY

VATICAN CITY (UPI): President Kennedy's decision to visit Pope John XXIII next month, instead of waiting until next year, caused speculation today that his plans were based on reports of the 81-year-old Pontiff's failing health.

Kennedy originally planned to confine his June visit to Italy to Milan, then to return next year, when Mrs. Kennedy will be able to travel, to visit Rome and presumably the Vatican.

But Pope John has seemed haggard and worn in recent public appearances, giving rise to reports that the stomach ailment that kept him in bed last fall has recurred.

THERE HAVE been reports that he has cancer. The Vatican has never denied them, and the reports have been circulating again in recent days.

Vatican sources had no comment on the speculation that the President may think it opportune not to wait a year for his meeting with the Pope. They said only that the meeting will be a "very important, very solemn affair."

Kennedy will be the third American President to meet a Pope and the second to meet Pope John. Former President Eisenhower had a meeting with the Pontiff in December, 1959. Woodrow Wilson was the first President to hold such a meeting, with Pope Benedict XV in 1910.

BUT KENNEDY'S visit will be precedent-setting, because he is the first Roman-Catholic President of the United States.

The visit is believed certain to reopen the delicate issue of U. S.-Vatican relations. The United States has had no official contact with the Vatican since the resignation of Myron C. Taylor, who served here as the personal representative of Presidents Roosevelt and Truman until 1950.

City Battles Slide Blocking Street

Elberon avenue remains closed to traffic today as crews from the Highway Maintenance Department continued efforts to clear the street of earth and debris pushed there by a landslide.

The hillside started to slip about a week ago, and heavy rain on Wednesday accelerated the slide and sent mud, clay and fallen trees into the street.

City crews were unable to clear the street fast enough to stay ahead of the slide and a bulldozer, bucket crane and dump trucks were brought in yesterday to speed clean-up efforts.

David Pope, inspector for the highway maintenance, said about 400 cubic yards of dirt were removed from the street yesterday and crews would continue to clear the street today.

The slide is undermining one house at 524-28 Davenport avenue, Price Hill, and two families there were forced to leave.

Until the street is cleared, traffic has been rerouted from Elberon over Warsaw and Glenway avenues, River road, and W. Eighth street.

Remember you read it first in The Post and Times-Star.

Chuckle for Today...

Many a domestic explosion has been touched off by an old flame.



BUT DRIVER SAFE—Dan Gurney practicing for the 500-mile Memorial race at Indianapolis, lost control of his Lotus-Ford. It spun 501 feet to the Speedway's first retaining wall. Gurney was not hurt. (See story on 8, "Parnell Jones Bidding for Pole.")

Cooper Says He Was

Sure He Would "Go 22"

ABOARD USS KEARSARGE (UPI): L. Gordon Cooper returns to the United States today for a reunion with his family and a hero's welcome from a proud nation.

The astronaut's final hours aboard the Kearsarge were spent in technical "debriefing" talks — detailed discussions of every aspect of his space flight.

As he paid his farewells to the officers and men of the Kearsarge, Maj. Cooper made it clear that he was determined and confident from the outset of his space flight that he would not only complete his full 22 orbits, but that he would also land in the vicinity of the Kearsarge.

TALKING LAST night to the first-class petty officers in their mess hall, he said, "I had no doubts at any time that I would go for the full 22."

"I had a little sign on which I wrote 'go 22' and I had it up to the TV camera to show how I felt."

In an impromptu but brief question-and-answer session that followed, Cooper again demonstrated his confidence in his ability as a pilot and the abilities of those who teamed to launch him into space.

He said he had "no trouble" using the manual system to bring his Faith-Seven space capsule in for a perfect landing after failure of the automatic stabilization control.

ASKED HOW it felt to orbit through space, the slow-talking pilot thought hard but admitted he just couldn't find the right words. "It felt great," he said, and then

paused. "It's hard to describe it. It really is wonderful."

Later he talked to the enlisted men in the hangar deck where he again expressed his thanks to the crew and personally thanked the seven members of the underwater demolition crew who were assigned the job of recovering his capsule.

"WHEN YOU are coming out of the blackout," he told his audience of over 1000, "and are pulling a few G's and things are flaming about you and there is a big fireball behind you, it is a most comforting sound to hear those helicopters orbiting around you. Before I had my antennae out, a swimmer was knocking on the capsule asking me how I felt."

The newest American astronaut told doctors who examined him yesterday that

he kept his thumb under his arm while he slept, a space voyage to accidental flipping switches.

Three physicians examined the 39-year-old major, pronounced him in A.O.K. physical after his more than 28 days in space.

As for the trick of his hands out of 1 G, Cooper said he kept one from the Russian. The space pilot from one of his first catnaps to see him stretched in from From then on, he that he kept tucked in.

Dr. Pollard said Cooper experienced sensation of speed more other of the astro-

Family Awaits Cooper Along With All of H

HONOLULU (UPI): The wife and two daughters of astronaut L. Gordon Cooper today anxiously awaited his return to a reunion with America's newest space hero, but to share it with thousands of admiring Hawaiians.

For Mrs. Trudy Cooper and her husband, the family will be waiting for their first family gathering since Cooper's record-setting 22.9-orbit flight will be a sentimental one. It was in Honolulu while they were attending the University of Hawaii after World War II, that the Coopers met and were married.

Cooper was to set foot on American soil today for the first time since blasting off from Cape Canaveral when a helicopter from the USS Kearsarge deposited him at Hickam Air Force Base. There he will be greeted by Hawaii Gov. John A. Burns, Adm. Harry D. Felt, commander of U. S. Pacific forces, and other dignitaries.

Then Cooper and his family will be welcomed to a reception for the first time since his flight. Some predict the reception for the first time since his flight. Some predict the reception for the first time since his flight.

WAGS ARE IN GOOD SHAPE, BU

Army Nives Mu

Cincinnati Post 1963 May 18

Muggy Week End

Cincinnati is in for a wet and warm week end, the Weather Bureau says. Not much rain is in sight, but humidity will be high. Tonight will be partly cloudy and a little cooler. Low temperature will be around 50. High tomorrow will be about 70. The outlook for Monday is slightly cooler.

Thunderstorms dropped 3.3 inches of rain on Morehead, Ky., last night, while a tornado destroyed a barn



SULTRY

The Parade Of Homes

The Parade of Homes has started. You may find your home of the future in the special section in today's Post and Times-Star. The new houses open for your inspection are listed, plus all the new features and

Landslide Nudges Elberon Ave.

Several thousand tons of earth are creeping relentlessly onto East Price Hill hillside onto Elberon Avenue. It may cost property owners money.

Highway maintenance crews are on a standby basis to scoop up the overflow as it inches over the curb near the outbound ramp exit of Waldvogel Viaduct.

"When that much lets loose, no force can stop it," a highway maintenance spokesman said. He estimated the rate of slump at two to three inches an hour. He estimated that an area 300x300 feet was involved. The 300 feet parallel the north curb of Elberon Ave.

The 200 feet touch Davenport Street, parked atop the near-cliff hill.

"ALL WE CAN do is stand by at the bottom and keep the street clear—that is our only responsibility," the spokesman said.

William C. Wichman, public works director, ordered city workers to keep records of expense involved, pending clarification of financial responsibility. The slumping hillside is owned privately. It was pointed out.

The top of the slide started near the foundation of one home. It did not appear that houses on Davenport Street—partly public

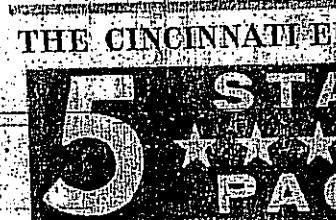
and partly private—were endangered, officials said.

RESIDENTS noticed that the land slump started about two weeks ago, city workers were told. However, the city was not notified until Thursday, when earth pushed out over the Elberon Avenue curb. Barriades were thrown up, blocking off two north bound lanes

of Elberon Avenue. Traffic moved well, however, over the two south bound lanes.

Meanwhile, crews of workers cut and removed trees from the hillside, facilitating removal of earth as it pushed into the street.

The sloping earth is being picked up by a motor crane and clamshell digger. How long the slump would creep was anybody's guess.



Friday, May 17, 1963

On 18th Orbit Cooper No

Astronaut Gordon Cooper has no sons—but has a Greater Cincinnati name sake.

The namesake is Gordon Todd Cooper, born at 11:50 a. m. Thursday at St. Luke Hospital, Ft. Thomas, Ky. Young Gordon, weighing in at eight pounds, 3 1/2 ounces, is the son of Mr. and Mrs. John H. Cooper, 127 East 42nd St., Latonia, Ky.

The infant entered the world while the man for whom he was named was making his 18th orbit around it. Major Cooper was between Papua, New Guinea, and San Diego, Calif., at 11:56 a. m. Thursday.

Latonia's Mrs. Cooper has no objection to her new son following in Major Cooper's footsteps, or rather, space steps.

"I really wouldn't mind at all if he became an astronaut," she said. "If he wants to fly out there, let him go. But I'll stay on the ground and worry."



Enquirer Staff Photo

At Bottom Of Slump workers clear trees off steep slope

Anthony G. Esposito, Symphony Performer

Anthony G. Esposito, violinist of the Cincinnati Symphony Orchestra died suddenly Thursday at noon at his home, 2888 McKinley, of a heart ailment. He had been stricken five years ago but had recovered.

His death occurred while his wife, Elsa, was en route to New York. She returned to the city late Thursday night.

Mr. Esposito came to Cincinnati following his musical education in New York

City, where he was a Mannes School scholarship winner. He began his career in the orchestra when Fritz Reiner was conducting.

In addition to work with the orchestra and teaching, he played in several top-notch popular orchestras with Henry Thies, Bert Farmer, and Gardner Benedict.

Two sons and the widow survive. Funeral plans are incomplete.

MRS. COOPER said she knew Major Cooper's first name was Leroy.

"I guess I just sort of forgot it and only thought of Gordon at the time," she said. Both she and the hospital nurses felt that the name "Gordon" came close enough.

Young Gordon's daddy is an electrician with the Baltimore and Ohio Railroad.

"He's mighty proud," said

Pulse Of Science Figures Heartening To Middle-Aged Men

BY JACK SMITH
Enquirer Science Writer

TAKE HEART—The death rate in middle-aged men for heart and blood vessel diseases dropped 6% between 1950 and 1960, the American Heart Association reports.

Dr. James V. Warren, president of the AHA, called the drop "the first relatively sustained improvement we have seen among men in the prime of life—the 45-60 age group."

The drop came about through a 44% drop in the death rate from high blood pressure and 22% drop in deaths from strokes. Dr. Warren said, which offset a 4% death rate rise from hardening of the arteries.

He credited the improvement to activities of the American Heart Association and the National Heart Institute of the U. S. Public Health Service in greatly increasing heart research in the early 50s.



NORMALLY DULL—The "normal" young American housewife is emotionally well-adjusted, average or above average in physical attractiveness, content with her lot in life, realistic about social aspirations, idealizes her husband and is completely confident of his fidelity, does not try to dominate him and has children who are emotionally healthy too.

This capsule sketch was given by a team of Albany, N. Y., Medical College researchers at a recent meeting of the American Psychiatric Association at St. Louis.

They added a kicker—she and her husband lead a life that is "essentially mundane and dull."

NEW TWIST—More and better "twister" warnings may result from an Air Force weather study. The Air Force Cambridge Research Laboratories reported recently on research from high-altitude flights over Oklahoma that may give weathermen new ways to predict the birth of these damaging storms, which sometimes afflict this area.

One "involves simple visual observation," from above a large thundercloud, of rapid changes in the cloud circulation system. Large whirlpool circulation developed just downwind of a giant thunderstorm and 45 minutes after development of this vortex, several tornadoes were observed on the ground on the same line as the high-altitude vortex. AF scientists reported.

Also, when the vortex developed, the electric field some 12,000 feet above the storm—or about 60,000 feet, began to fluctuate faster but not as strongly as before when the thunderhead was developing, the scientists said.

TH OR NOT TH—There is no question that tuberculosis is rising, preliminary U. S. Public Health Service figures show. There were 54,652 new active cases in 1962.

"Nearly 55,000 new cases of a communicable disease are reported as tuberculosis reported in a single

Deaths And Funerals Bernard J. Kathman Dies At 74

Bernard J. Kathman, 74, president of the Kathman Sons Funeral Home, 2050 Beechmont Ave., died Thursday at his home, 3916 Lincoln Ave., Covington.

Mr. Kathman was president of the Covington Board of Education for 32 years; a past grand knight of the third degree in Bishop Carroll Council, Knights of Columbus, Covington; past master of the fourth degree, Knights of Columbus of Kentucky; past district commander in the Order of the Alhambra, and a member of the Latonia Kiwanis Club.

Surviving Mr. Kathman are his wife, Mrs. Mae Kathman; four daughters, Mrs. Margaret Helen Dietz, Mrs. Edith Lee and Mrs. Marianne Wendling, all of Covington, and Mrs. Bernice Feidkamp of Mt. Washington; two sisters, Mrs. George Weather and Mrs. Lilly Tierney, both of Covington, and

will be conducted at 2 p. m. Saturday at T. P. White and Sons Funeral Home, 2050 Beechmont Ave., with burial in Mt. Moriah Cemetery, Tobasco. Friends may call from 4 to 6 p. m. Friday.

Mr. Strouse died Tuesday at his home. He had been in the automobile business 35 years, most recently as a salesman for Ed Wissel Motors, Inc., 2300 Ferguson Road.

Surviving are two daughters, Mrs. George (Judy) Hammann and Mrs. C. R. (Joyce) Willis, both of Cincinnati; one son, William Strouse, U. S. Air Force, Vallejo, Calif.; one sister, Mrs. Marie Keel, Cincinnati; and 10 grandchildren.

Irene Vitt
Mrs. Irene Vitt, 69, died Thursday at Deaconess Hospital. An invalid most

will be in St. Joseph Cemetery, Eighth St. and Nebraska Ave. Friends may call from 4 to 6 p. m. Friday at the Vitt & Steiner Funeral Home, 3426 Harrison Avenue.

Arthur Cromer

Services for Arthur L. Cromer, 69, 2683 Utopia Pl., Hyde Park, will be conducted at 8:30 a. m. Saturday at T. P. White and Sons Funeral Home, 2050 Beechmont Ave., where friends may call from 4 to 6 p. m. Friday. Burial will be in Spring Grove.

Mr. Cromer died Wednesday at Jewish Hospital. He was a wholesale foot broker. Surviving are his wife, Claudia L. Bagwell; Cromer's three sons, C. Jackson, A. Boyce and Robert A. Cromer, all of Cincinnati; one

Mrs. Co both of name a man fo named.

3 Te

Three injured serious illness-n Road.

Treat Francis leased 16, 1935 1978 He nling R 21-625 Miss enger mobile Loyd W

of the Co. in Mrs. P he is a daught leaves sisters, was a Police Dayton loes in Dallas.

R

Mother charged with endangering

BY STEVE HOFFMAN
and STEVE KEMME

The Cincinnati Enquirer

HAMILTON — The mother of a 3-year-old Liberty Township girl who suffocated in a toy box was charged with child endangering Wednesday by the Butler County Sheriff's Department.

Brenda Sams, 19, was asleep in the family home on 6317 Port Lane near Hamilton on Friday when her daughter, Destanie Newcomb, fell into the large toy box and died, police said.

"We felt (Ms. Sams) failure to provide due care is what resulted in (the) death of the child," Lt. Anthony Dwyer said.

Ms. Sams was arraigned Wednesday in Butler County Area II Court and was released on her own recognizance by Judge J.B. Connaughton.

The child endangering charge is a fourth-degree felony. Ms. Sams will appear at a preliminary hearing Wednesday.

Lt. Dwyer said authorities filed charges against Ms. Sams because she intentionally fell asleep. If she had accidentally fallen asleep, charges might not have been filed, he said.

Tuesday's funeral was one factor that delayed charging the mother until Wednesday, he said.

Police said the mother had fallen asleep Friday afternoon after working a night shift. When she awoke, she found her other child, a 2-year-old, in the living room.

When she asked Destanie's whereabouts, the 2-year-old pointed to the toy chest. Ms. Sams found Destanie not breathing in the box, police said.

She ran to the home of Rick Bucheit, an off-duty Butler County deputy sheriff, who performed mouth-to-mouth resuscitation while awaiting Liberty Township and Monroe rescue workers.

The girl was flown to the Children's Medical Center of Dayton by helicopter. She was pronounced dead at 6:20 p.m., 16 minutes after her arrival.

Ms. Sams, James Newcomb, 22, and the two children have been living in the Hamilton area for about one year.



The Cincinnati Enquirer/Steven M. Herppich
Norma Ayers of the Cincinnati Department of Public Works scrapes mud from the retaining wall Wednesday on Columbia Parkway.

Road crew beats mudslide to the punch

Tipsy shale pulled onto Columbia Pky. for preventive cleanup

BY DANA DIFILIPPO
The Cincinnati Enquirer

The last time their house almost slid off the hill, Robert and Jean Rothenberg did the only thing they could think of to stave off their feelings of helplessness. "We went and got Graeter's," Mrs. Rothenberg said. "We don't drink, and we needed an outlet."

For 30 years, the East Walnut Hills couple have lived in an old stone house perched precariously atop the hillside along Columbia Parkway near Kemper Lane.

And with each rain, the retired internist and his wife wince while waiting for the slides to dry. While they've suffered only one significant slide, neighbors along the parkway have seen more mud slip past than they could measure.

Wednesday, it almost happened again.

Road crews closed the parkway's three westbound lanes 500 feet east of Kemper Lane to remove 300 tons of mud and debris.

But this time, the slide was intentional. Road crews noticed some slippage in the hillside after

Tuesday's heavy rain and decided to pull the sliding shale onto the roadway and clean it up themselves rather than wait for it to surprise them, said Diane Watkins, a supervisor in the Cincinnati Highway Maintenance Division.

The slide followed another Tuesday on Elberon Avenue in Price Hill. One lane of that road will be closed for several days while workers clear the area and reinforce a retaining wall.

With two sizable spills already this year, some residents worry whether this spring will bring the hillslides oozing onto roads as often as last spring.

But experts are reluctant to speculate. "It depends on how much rain we get, really," said Timothy Jamison, a geotechnical engineer in the Cincinnati Department of Public Works.

"Mudslides primarily are a function of precipitation."

Last year, frequent and heavy rains forced the city to spend \$195,000 to clean up mudslides (and maintain the traffic tie-ups), Ms. Watkins said. City officials

recouped about \$90,000 from the Federal Emergency Management Agency, she said.

While city engineers and road workers patrol problem areas — including Columbia Parkway and Elberon, Glenway and Clifton avenues — there's little they can do to prevent slides, Mr. Jamison said.

"When a lot of these roads were built, the slopes were oversteepened, so that surface soil is going to keep on coming down," he said.

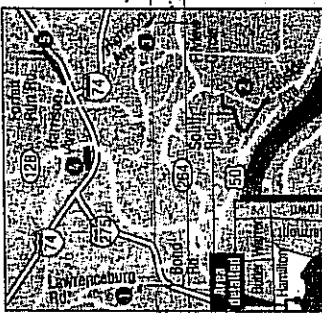
Vegetation is one answer; roots hold soil down, he said. But because rock lies beneath many hillslides, "You're basically trying to get trees to grow on rock," he said.

The Rothenbergs planted honeysuckle bushes to stabilize their hillside. Still, the threat of slides keeps both nervous.

Landscapers, college geologists and researchers from the Hillside Trust, which monitors Cincinnati slopes, should be charged with stabilizing area slopes at property owners' expense, she suggested.

"It's pretty scary to think that

Slipping away



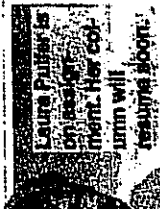
The Cincinnati Enquirer
Major areas in the county being monitored for soil slippage include:

- 1 About 200 feet on Bond Road at the intersection of Lawrenceburg Road in Whitewater Township.
- 2 1,500 feet on South Road, between Hillside Avenue and Gallia Street, near Audysion.
- 3 Harrison Avenue at Filview Circle in Green Township.
- 4 About 1,000 feet west of Ohio 128 parallel to I-275.
- 5 About 1,000 feet on Fort Harrison Road, one mile east of Harrison Road in Colerain Township.

if we have a heavy enough rain, we might end up on Columbia Parkway," said Mrs. Rothenberg, 89. "We've tried to get insurance, and we can't. But with as often as we have slides, I can understand that."

Grandmas roll as parking-meter grandma's trial begins

A PULFER



— Newport's riverfront in the spotlight as a proposed \$40 million site for a new Tristate arena is one of several proposed for a 19-acre site, where plans call for residents of 202 public

Guidugli told The arena is one of several proposed for a 19-acre site, where plans call for residents of 202 public

Commissioner Beth Wednesday that some developers had looked at housing area north of Street Bridge as a

Newport City Manager was part of a Newport that visited Gund Arena

declined to commission Wednesday when asked possibility of an arena

the Newport Housing passed a resolution for the relocation of 202 units of housing on Fourth Street Bridge.

people live in apartment, the board hired Cornerstone start planning for housing with little or no

own, executive director Newport Housing Authority, representative of Corner with residents of public housing Friday to

SPORT, Page B6

Northbound Interstate 75, south of Mitchell Avenue, Sherry Green lost control of her car when she hit a pickup driven by Simon Davis. Her car went into a spin, became airborne and landed upside down, lodged against a guardrail. According to Mr. Davis, Ms. Green crawled from the car and pulled out her son, D'Angelo, before collapsing on the berm. Police said that wet roads contributed to her loss of control and that she will be cited for an improper lane change.

Cincinnati Enquirer 2005

Elberon Ave. mudslide closes lane

One lane of Elberon Avenue near Mount Hope Road in Price Hill will be closed for a few days because of a mudslide Tuesday. Dianne Watkins, a supervisor in the Cincinnati Highway Maintenance Division, said the lane will remain closed while workers clear the area and reinforce a retaining wall.

She said the work crews also are keeping watch on Columbia Parkway, which showed some slippage Tuesday, but was not closed. Two lanes on westbound Columbia Parkway had to be closed May 30 when mud oozed over a retaining wall.

COURTS

Federal suit fee added

In line with a new federal law, the U.S. Court of Appeals for the 6th Circuit said Tuesday it no longer will allow prisoners a waiver of court fees and costs for filing cases with the court. The administrative order ap-

Officer avoided accelerating car

BY ADAM WEINTRAUB

The Cincinnati Enquirer

As the tires of the red Hyundai squealed backward, Cincinnati Police Officer Orlando Smith dodged the rear end of the car and came up firing.

When the smoke cleared, the driver, Darnell E. Brown, had a 6-inch laceration across his neck — torn by a slug from the officer's pistol, police said.

Mr. Brown was released from University Hospital on Tuesday, and jailed on a felonious assault charge. Police were investigating the Monday night shooting, hampered by the fact that police and rescue workers had trampled through the crime scene in North Avondale.

Officers Smith and Carlos

Darnell had to They unmar into an way in ing.

The waiting rive, b saw a window Cincinnati Officer self an Officer

GOVERNMENT

Judge named to panel

Ohio Chief Justice Thomas Moyer has appointed Judge Sylvia Sieve Herndon of Hamilton County Juvenile Court to the Ohio Criminal-Sentencing Commission for a four-year term beginning March 13. The commission reviews legislation and recommends changes in the sentencing code.

Voters restore tax

FOREST PARK — Issue 1, a charter amendment that will restore the city's policy of giving a

Consolidat monthly 1



**OFFICE OF
EMERGENCY
PREPARATION**
EXECUTIVE OFFICE OF THE PRESIDENT

DAMAGE SURVEY REPORT

(Under Public Law 606, 91st Congress)

1. APPLICANT (State Agency, County, City, Irrigation District, etc.) CITY OF CINCINNATI		2. DISASTER DECLARATION DATE 6-4-73	
3. STATE OHIO	4. COUNTY HAMILTON	5. INSPECTION DATE 6-12-73	
6. WORK CATEGORY (SEE DEFINITIONS)		7. MAJOR PHOTO REFERENCE NO.	
a. EMERGENCY <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C-1 <input type="checkbox"/> D-1 <input type="checkbox"/> E-1 <input type="checkbox"/> F-1 b. PERMANENT <input type="checkbox"/> C-2 <input type="checkbox"/> D-2 <input type="checkbox"/> E-2 <input type="checkbox"/> F-2 <input type="checkbox"/> G		c. ITEM NO. CIN 11	
9. LOCATION AND DESCRIPTION OF DAMAGED FACILITIES 3 UPHILL UPHILL SLIDES ON THE NORTH SIDE OF ELBERON AVE. 500' EAST OF Mt. Hope		8. WORK TO BE ACCOMPLISHED BY: <input type="checkbox"/> a. Contract <input checked="" type="checkbox"/> b. Force Account	
11. DESCRIPTION OF DAMAGE UPHILL SLIDES CAUSED MUD AND DEBRIS TO FALL INTO DITCH AND ROADWAY		10. PERCENTAGE OF WORK COMPLETED TO DATE 100	
12. PROPOSED WORK REMOVE AND HAUL TO DUMP RECONSTRUCT DITCH			

13. SUMMARY OF ~~ESTIMATED~~ costs thru 4/30/73

QUANTITY a.	UNIT b.	MATERIAL AND/OR DESCRIPTION c.	UNIT PRICE d.	COST e.
95.5	Hours	Foreman	5.27	503.28
569	Hours	Truck driver	4.15	2,361.35
67	Hours O.T.	Truck driver	6.22	416.74
16	Hours	Truck driver	3.98	63.68
13	Hours O.T.	Foreman	7.90	102.70
16	Hours	Truck driver	3.82	61.12
95	Hours	Laborer	3.74	355.30
11	Hours O.T.	Laborer	5.61	61.71
95.5	Hours	Raker	3.98	380.09
34	Hours	Tree trimmer	3.74	127.16
16	Hours	Tree trimmer	3.98	63.68
14	Hours O.T.	Raker	5.97	83.58
21	Hours	Equipment operator I	4.51	94.71
13.5	Hours O.T.	Equipment operator I	6.76	91.26
19	Hours	Truck driver, Mach. oper., C.L.	4.59	87.21
(Cont. on next page) TOTAL ESTIMATED COST				

14. INSURANCE COVERAGE

☐ YES

☒ NO

AMOUNT _____

15. RECOMMENDATION

<input checked="" type="checkbox"/> a. ELIGIBLE <input type="checkbox"/> b. INELIGIBLE (Explain Separately)	c. FEDERAL INSPECTOR (Signature & Agency Name) <i>S. J. Louie</i>	d. DATE 6-12-73
--	--	---------------------------

16. CONCURRENCES

<input checked="" type="checkbox"/> a. YES <input type="checkbox"/> b. NO	c. STATE INSPECTOR (Signature) <i>Erwin Pfeigsteg</i>	d. AGENCY OR OFFICE O.D.D.T.	e. DATE 6-12-73
<input checked="" type="checkbox"/> a. YES <input type="checkbox"/> b. NO	c. REPRESENTATIVE OF APPLICANT (Signature) <i>Rudolph M. Baker</i>		d. DATE 6-12-73

Elberon Ave., 500' east of Mt. Hope

25	Hours	Equipment operator II	4.99	124.75
33.5	Hours O.T.	Equipment operator II	7.48	250.58
15	Hours	Truck driver, mach. operator	4.37	65.55
32	Hours	Equipment operator III	5.57	178.24
32	Hours	St. Cl. equipment operator	4.89	156.48
24	Hours	Foreman	5.09	122.16
4	Hours	Equipment operator I	4.36	17.44
4	Hours	Raker	3.73	14.92
4	Hours	Laborer	3.49	13.96
146	Tons	Cinders	4.80	700.80
1	Ton	Cold stone mix	6.90	6.90
51	Days	Flasherlights	1.38	70.38

Hired equipment, including operator

51.5	Hours	Gradall	35.00	1,802.50
35	Hours	Tandem dump - 12 C.Y.	12.75	446.25
25	Hours	Crane	30.00	750.00
2	Hours	Bulldozer	20.00	40.00
192	Hours	Dump truck, 9 C.Y.	6.00	1,152.00
40.5	Hours	Dump truck, 6 C.Y.	5.00	202.50
230.5	Hours	Dump truck, 5 C.Y.	4.00	922.00
172.5	Hours	Dump truck, 4 C.Y.	3.00	517.50
36	Hours	Mack tractor W/trailer	9.50	342.00
8	Hours	Generator 25 K.W.	.50	4.00
17.5	Hours	Chain saw	.75	13.12
34.5	Hours	Water truck (flusher)	6.50	224.25
15	Hours	Cherry picker	7.75	116.25
32	Hours	Crane, lifting, 30 ton truck	17.50	560.00
45	Hours	Shovel, tractor	9.75	438.75

\$14,106.85

6/28/90

John Hamner, Highway Maintenance Department

Tim Jamison, Geotechnical Engineer - Structures Section

See Distribution

CONDITION REPORTS #57995 & #58091 - ELBERON AVENUE

COPIES: G. Rowe, Dir. Public Works; G.C. Hartman, Struct.; T.M. Jamison, Struct.; B.R. Burkhalter, Struct.; Struct. File; Admin. File; TEY-Div. File (Street)

Both slides are addressed in this report since each slide is both similar in nature and location on Elberon.

The above mentioned sites were visited on May 30, 1990. The material had been removed from the street surface and deposited back on the shoulder (see attached photographs). This material should be removed completely from both locations and shoulder regraded. Since bedrock was present in both slides, (layered limestone with unweathered shale), the exposed surface appears stable. A barrier structure should be considered at the toe of the slope to prevent any loose rock from rolling or spilling onto Elberon. The above structure could also catch any loose material undermined by the slide. This structure could be periodically clean and maintained as needed.

Please contact Tim Jamison on extension 3446 if any additional inspections are required.

Timothy M. Jamison
Geotechnical Engineer



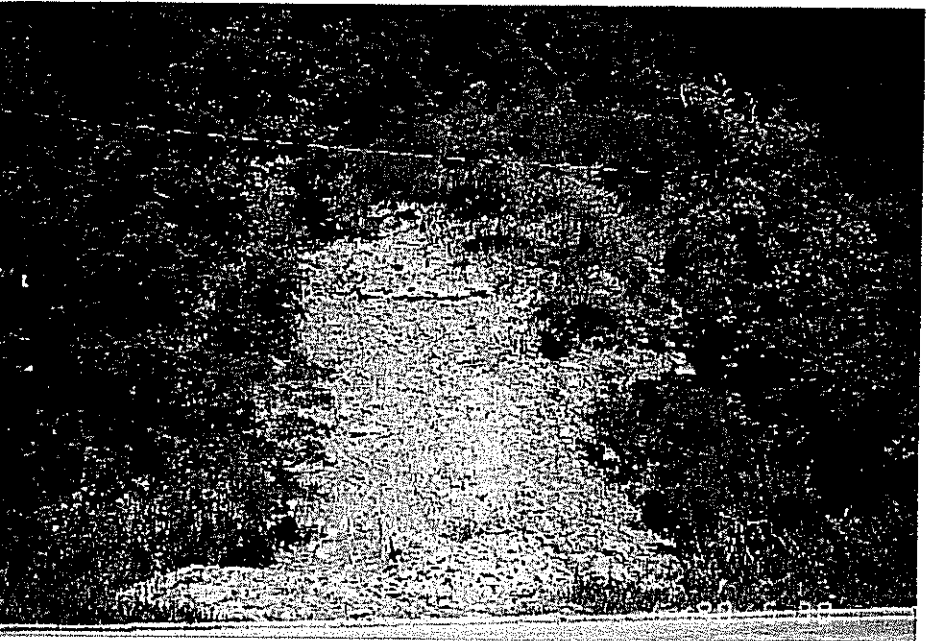
Nº 57995A

ELBERON MUD SLIDE 5-17-90
PRIOR TO CLEAN UP OPERATIONS.



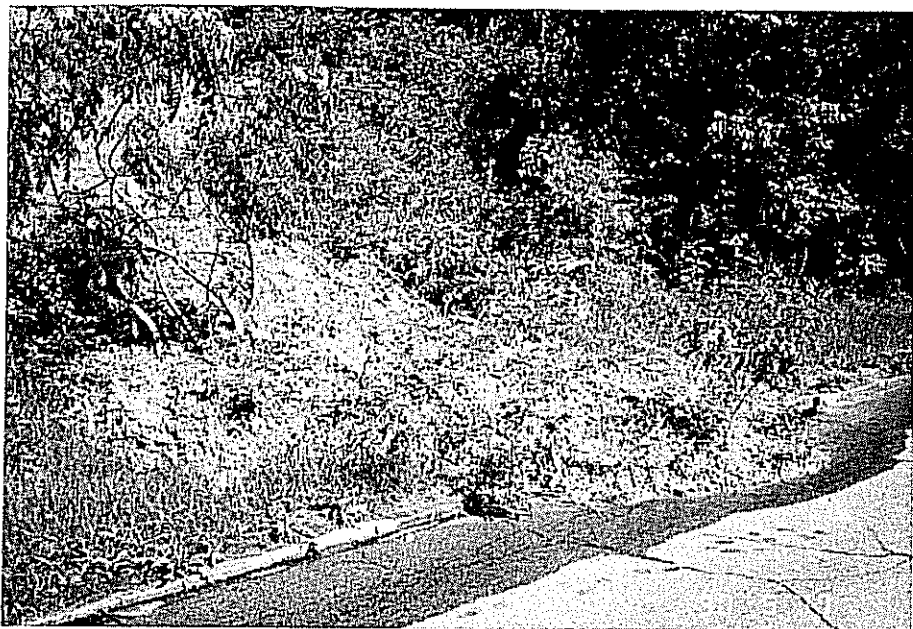
Nº 57995B

ELBERON MUD SLIDE 5-30-90
AFTER CLEAN UP OPERATIONS.



Nº 57995c

ELBERON MUD SLIDE 5-30-90
SHALE & BEDROCK LIMESTONE
(BEDROCK) FORMATION.



Nº 58091A

ELBERON MUD SLIDE 5-17-90
PRIOR TO CLEAN UP OPERATIONS.



Nº 58091B

ELBERON MUD SLIDE 5-30-90
AFTER CLEAN UP OPERATIONS.



Nº 58091C

ELBERON MUD SLIDE 5-30-90,
SHALE & LIMESTONE (BEDROCK)
FORMATION.

HMD 360

R/W CONDITION REPORT

CITY OF CINCINNATI
DEPT. OF PUBLIC WORKS

NO. 58091

LOCATION ON ~~East~~ Elberon bet. Mt. Hope & Purcell

Tim Jacob

REPORTED BY:

352-3787

ADDRESS

phone

PHONE NO.

V. Banks

VIA

DATE 5/17/90

RECEIVED BY

TIME

A.M.

P.M.

CONDITIONS REPORTED

several mud slides.

ASSIGNMENT

DATE

TIME

REC'D

ASSIGNED

COMPLETED

CONDITIONS FOUND AND TEMPORARY ACTION TAKEN

George Hope Area Area Life Found in
 immediate Movement at 1:00 P.M. 5-17-90
 Suppl. to Structure and 11:00 P.M.
 to check locations, 5-18-90 5:00 P.M.

Two small mud slides blocking the north
 gutter of Elberon were checked by Kevin Hamner
 on 5-17-90. Slides were barricaded by cones.
 Called HMD on 5-22-90 and they told the two
 slides had been cleaned up.

FINAL DISPOSITION

Referred *dk* 5-21-90

CITY OF CINCINNATI
DEPT. OF PUBLIC WORKS

LOCATION O/B 300 Elberon

NO. 57995

N.F.A.W.

MAY 17 1990

REPORTED BY: 322

ADDRESS

PHONE NO.

VIA XX Phone

DATE 5-17-90

TIME 7:28 A.M.

RECEIVED BY D. Zimmerman

CONDITIONS REPORTED

Mud slide - moving over curb.

ASSIGNMENT

DATE 5-22-90

TIME 558

REC'D 7:28 AM

ASSIGNED

COMPLETED

CONDITIONS FOUND AND TEMPORARY ACTION TAKEN

CLEAN MUDSLIDE
OUT of the STREET

5-17-90

R HALL

FINAL DISPOSITION

Copy to Structures Eng.

5-22-90 dk

NFAW

DATE

5/17/90

Rapid Earth Flow in Collision/Cut Slopes

1996 Landslide Summary - City of Cincinnati									
Street	Location	Date	Origin	Impact on ROW	Action Needed	Action Taken	Type		
Columbia Parkway	Just west of Torrence	4/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Columbia Parkway	Just west of Torrence	5/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Columbia Parkway	500' east of Kemper	4/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Columbia Parkway	200' east of Collins	5/27/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Columbia Parkway	100' east of Linwood	5/96	Private property	Debris in berm	Clear berm	No	Translation		
Columbia Parkway	2500' east of Kemper	5/29/96	Private property	Debris in roadway	Clear roadway	In progress	Translation		
Columbia Parkway	1/4 mi south of Corp. line	5/15/96	Right-of-way	Deflection of shoulder	Regrade slope	No	Rotational		
Elberon Avenue	300' east of Mt. Hope	4/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Elberon Avenue	500' west of Mt. Hope	4/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Elberon Avenue	500' west of Mt. Hope	5/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Elberon Avenue	600' east of Purcell	4/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Elberon Avenue	600' east of Purcell	5/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Glenway Avenue	2400 block	5/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Glenway Avenue	2500 block	5/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Clifton Avenue	Near Klotter	4/96	Park property	Rock in roadway	Place barrier	Yes	Rock Fall		
Baxter Ave. (paper street)	below Dunkirk	5/22/96	Private property	Deformation of ground	None	N/A	Translation		
Renner Street	Near Stonewall	5/96	Private property	Debris in roadway	Clear roadway	Yes	Translation		
Leeper Street	500' east of Colerain	5/96	Private property	Debris in drainage ditch	Clear ditch	No	Translation		
Note: As of 5/30/96 we have had no road closure or utility break due to a landslide originating in the right-of-way.									

Date 6/23/97 Time: 10:43 am/pm Rec'd By Hodges Dept. of Public Works
Service Request # 088479
LOCATION Elkaron Ave at the Bend Community Krice Hill
San ☐ HMD ☐ TE ☐
SWMU ☐ CFM ☐ Eng ☐
Other, 15457
Reported By: Nancy Reid
Address: 5368 Maylee Pl.
Via: _____ Phone 922-5861 Due: _____
Assigned To: _____ Date: _____ Time: _____ am/pm
(Div.) Person

☐ Highway Maint.

- ☐ Pothole
- ☐ Curb Damage
- ☐ Street\Utility Cuts
- ☐ Street Repairs
- ☐ Defective Sidewalk
- ☐ Sewer Trouble
- ☐ Steps & Viaducts
- ☐ St. Signs & St. Paint
- ☐ Trees
- ☐ Interstate Cleaning
- ☐ Weeds
- ☐ Street Plates
- ☐ Litter- R/W, Cars, Furniture
- ☐ Other, _____

☐ Sanitation

- ☐ Collection (FTC, LSO)
- ☐ Street Cleaning (Urban)
- ☐ Damaged\Missing Property
- ☐ Dead Animal
- ☐ Set Out Service Request
- ☐ Special Collection _____
- ☐ Other, _____

☒ Engineering

- ☐ Curb, Sidewalk, Driveway
- ☐ Street Condition (Rehab)
- ☐ Retaining Wall
- ☐ Encroachment in R/W
- ☐ Other, _____

☐ Stormwater\MSD

- ☐ Collapsed\Clogged Inlet
- ☐ Void in Road @ Inlet
- ☐ Water Ponding
- ☐ Other, _____

☐ Traffic Engineering

- ☐ Pavement Markings
- ☐ Curb Control (St. Signs)
- ☐ Traffic\Pedestrian Signal
- ☐ Street\Gas Light
- ☐ Construction Detours\Traffic Cntrl
- ☐ Pedestal
- ☐ School Flasher
- ☐ Other, _____

Additional Information

Resident is concerned about large rocks falling from Elkaron H. onto the street. Resident has found on occasion 2 large rocks and wants to know if the city is doing anything about this.

Action Taken: Customer Notified ☐ Letter (Attach) ☐ In Person ☐ Phone ☐ Other, _____

By: Tim Date: 6/25/97

Please contact resident
discussed w/ Nancy Reid
Re-interpreted slope to check for changes.

By: _____ Date: _____ Extension\Line: _____ Est. Completion Date: _____

Follow-up 42 CUSTOMER SERVICE REP. _____ DATE: _____

Reason for Delay: _____

Final Disposition:

Customer Notified ☐ Letter ☐ In Person ☒ Phone ☐ Other, _____

By: Tim Date: 6/25/97

Customer Feedback Date _____

☐ +
☐ -

Required Action?

☐ Phone Call ☐ Survey Card

CINCINNATI SERVICE REQUEST

Date Printed: 09/14/2007

Time Printed: 2:42 PM

Request #: SR05004068

Location:

2361 ELBERON AV

GJ1132930493 On Elberon just up from State St.

Structure ID:

Floor ID:

Unit ID:

Nearest Parcel ID: 015100010055

Census 2000:

Request:

Service Request: Landslide, near street

Division Advised: DOTE-ENGINEERING

Group: DT-STRCTRS-RTNNGWLLS

Department: DOTE

Trash/Recycling Day: MONDAY

Collection Dist: 3

Email: 01/19/2005 9:49:17 AM - rich.pohana@cincinnati-oh.gov

Status: CLOSED

Description:

559 states that there is a mudslide or landslide on Elberon just up from State Ave. The area is about 25-30 ft. long and has slid about 1 ft. over the curb area. 09:48 - notified Rich Pohana by phone

Intake Questions:

1. Where is it (address)? On Elberon just up from State
2. Is the slide near or within the street or alley? yes
3. Are there any signs that underground pipes are broken (water, gas, sewer)? NO
4. Have rocks, mud, trees, or poles moved towards the roadway? no
5. Has the ground or road sunken? no
6. What is the condition or problem? mudslide - about 1 ft. over the curb area
7. Is the slide on the uphill or downhill side of the roadway? UPHILL
8. How long is the problem area (10 ft, 50 ft, 100 ft)? 25-30 ft.
9. Did the condition occur suddenly? NO
10. Is it an ongoing condition? YES
11. Has the condition recently worsened? YES

Service Requested By:

Name: MACK TOM

Address: NOD EMPLOYEE

Community: EAST PRICE HILL

Zipcode: 45204

Telephone1: 383-2700

Telephone2:

Received by: PGILLIAM

Received on: 01/19/2005 - 9:49 AM

Response:

Date dispatched:

Time dispatched:

Dispatched to:

Completion Date:

Comments:

RPOHANA - 02/04/2005 8:50:55 AM - Notified TROD

RPOHANA - 02/04/2005 8:51:23 AM - TROD removed debri
RPOHANA - 02/04/2005 8:51:43 AM - TROD removed debri
RPOHANA - 02/04/2005 8:52:03 AM - Will continue to inpect area
RPOHANA - 02/04/2005 8:52:24 AM - Debris removed

CINCINNATI SERVICE REQUEST

Date Printed: 09/14/2007

Time Printed: 2:59 PM

Request #: SR05040454

Location:

2452 ELBERON AV

2452 ELBERON AV - GJ1102830330 OB Elberon in the bend past Mt. Hope

Structure ID:

Floor ID:

Unit ID:

Nearest Parcel ID: 017800320002

Census 2000:

Request:

Service Request: Landslide, near street

Division Advised: DOTE-ENGINEERING

Group: DT-STRCTRS-RTNNGWLLS

Department: DOTE

Trash/Recycling Day: MONDAY

Collection Dist: 3

Email: 07/13/2005 8:15:49 AM - rich.pohana@cincinnati-oh.gov

Status: CLOSED

Description:

Officer Ventre states that the mud is not in the road and not creating a hazard at this time, but if it continues to rain heavily, it may slide into the roadway. notified Rich Pohana at 08:15.

Intake Questions:

1. Where is it (address)? closest address is 2450 Elberon
2. Is the slide near or within the street or alley? no
3. Are there any signs that underground pipes are broken (water, gas, sewer)? NO
4. Have rocks, mud, trees, or poles moved towards the roadway? no
5. Has the ground or road sunken? no
6. What is the condition or problem? mud sliding down the hill, not near the street at this time
7. Is the slide on the uphill or downhill side of the roadway? UPHILL
8. How long is the problem area (10 ft, 50 ft, 100 ft)? 10-20 feet
9. Did the condition occur suddenly? NO
10. Is it an ongoing condition? YES
11. Has the condition recently worsened? NO

Service Requested By:

Name: VENTRE OFFICER

Address: DIST. 3

Community: EAST PRICE HILL

Zipcode: 45205

Telephone1: 235-6776

Telephone2:

Received by: PGILLIAM

Received on: 07/13/2005 - 8:15 AM

Response:

Date dispatched:

Time dispatched:

Dispatched to:

Completion Date: 11/09/2005

Comments:

RPOHANA - 11/09/2005 10:25:41 AM - Debris removed

RPOHANA - 11/09/2005 10:26:08 AM - Debris removed

CINCINNATI SERVICE REQUEST

Date Printed: 09/14/2007

Time Printed: 3:01 PM

Request #: SR06005221

Location:

363 ELBERON AV

ELBERON AV & PURCELL AV - GJ1067630016

Structure ID:

Floor ID:

Unit ID:

Nearest Parcel ID: 017700360033

Census 2000:

Request:

Service Request: Landslide, problem near street

Division Advised: DOTE-ENGINEERING

Group: DT-STRCTRS-RTNNGWLLS

Department: DOTE

Trash/Recycling Day: MONDAY

Collection Dist: 3

Email: 01/24/2006 10:18:03 AM - rich.pohana@cincinnati-oh.gov;

Status: CLOSED

Description:

landslide beginning about 3 feet from the curb. I contacted Rich Pohana he will check this out

Intake Questions:

1. Where is it (address)? Purcell at Elberon
2. Is the slide near or within the street or alley? near
3. Are there any signs that underground pipes are broken (water, gas, sewer)? NO
4. Have rocks, mud, trees, or poles moved towards the roadway? yes
5. Has the ground or road sunken? n
6. What is the condition or problem? n
7. Is the slide on the uphill or downhill side of the roadway? DOWNHILL
8. How long is the problem area (10 ft, 50 ft, 100 ft)? n
9. Did the condition occur suddenly? NO
10. Is it an ongoing condition? NO
11. Has the condition recently worsened? NO

Service Requested By:

Name: 473

Address:

Community: EAST PRICE HILL

Zipcode: 45204

Telephone1: Telephone2:

Received by: TROBINSON

Received on: 01/24/2006 - 10:18 AM

Response:

Date dispatched:

Time dispatched:

Dispatched to:

Completion Date: 02/10/2006

Comments:

RPOHANA - 02/10/2006 9:17:13 AM - Area investigated. TROD removed debris

RPOHANA - 02/10/2006 9:17:37 AM - TROD removed debris

CINCINNATI SERVICE REQUEST

Date Printed: 09/14/2007

Time Printed: 3:01 PM

Request #: SR06020733

Location:

363 ELBERON AV

ELBERON AV & PURCELL AV - GJ1067630016

Structure ID:

Floor ID:

Unit ID:

Nearest Parcel ID: 017700360033

Census 2000: 103.00

Request:

Service Request: Landslide, problem near street

Division Advised: DOTE-ENGINEERING

Group: DT-STRCTRS-RTNNGWLLS

Department: DOTE

Trash/Recycling Day: MONDAY

Collection Dist:

Email: 03/22/2006 11:04:08 AM - rich.pohana@cincinnati-oh.gov;

Status: CLOSED

Description:

on Elberon about 500 feet from Purcell hill has slid and is covering curb area. Cones have been placed. I contacted R. Pohana and T. Kellard

Intake Questions:

1. Where is it (address)? see above
2. Is the slide near or within the street or alley? yes
3. Are there any signs that underground pipes are broken (water, gas, sewer)? NO
4. Have rocks, mud, trees, or poles moved towards the roadway? no
5. Has the ground or road sunken? NO
6. What is the condition or problem? see above
7. Is the slide on the uphill or downhill side of the roadway? DOWNHILL
8. How long is the problem area (10 ft, 50 ft, 100 ft)? n/a
9. Did the condition occur suddenly? NO
10. Is it an ongoing condition? YES
11. Has the condition recently worsened? YES

Service Requested By:

Name: 473

Address:

Community: EAST PRICE HILL

Zipcode: 45204

Telephone1: Telephone2:

Received by: TROBINSON

Received on: 03/22/2006 - 11:04 AM

Response:

Date dispatched:

Time dispatched:

Dispatched to:

Completion Date: 05/12/2006

Comments:

RPOHANA - 05/12/2006 7:24:43 AM - Trod contacted area cleared

RPOHANA - 05/12/2006 7:25:01 AM - TROD cleared

GEOTECHNICAL SERVICES

ELBERON AVENUE CUT SLOPES

CINCINNATI, OHIO



CIVIL ENGINEERS

G. J. Thelen & Associates, Inc.

- ☒ 516 Enterprise Drive/Covington, Kentucky 41017-1595/606-341-1322/Fax 606-341-0832
- ☐ 10265 Spartan Drive/Cincinnati, Ohio 45215/513-771-5005/Fax 513-771-6669
- ☐ 3337 Milverton Court/Cincinnati, Ohio 45248-2865/513-574-7137



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- ☒ 516 Enterprise Drive/Covington, Kentucky 41017-1595/606-341-1322/Fax 606-341-0832
- ☐ 11407 Century Boulevard/Cincinnati, Ohio 45246-3303/513-671-5585/Fax 513-671-5681
- ☐ 3337 Milverton Court/Cincinnati, Ohio 45248-2865/513-574-7137

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January 17, 1992

City of Cincinnati
Engineering Department
801 Plum Street
Room 415
Cincinnati, Ohio 45202-1980

Attention: Mr. Richard Pohana

Re: Geotechnical Services
Elberon Avenue Cut Slopes
Cincinnati, Ohio

Gentlemen:

This report contains the results of our engineering analyses of the existing cut slopes along Elberon Avenue between Purcell and Maryland Avenues, Cincinnati, Ohio. This work was requested by Mr. Richard Pohana, City of Cincinnati Engineering Department, and was performed in accordance with the proposal-agreement dated August 16, 1991 which was authorized by Mr. Richard Pohana during a telephone conversation with our Mr. Donald B. Thelen, P.E. on October 1, 1991.

SCOPE

The purposes of these geotechnical services were to review the general terrain within the study area along Elberon Avenue, review the field cross section surveys and evaluate the subsurface profile to determine the potential for future landsliding and to provide potential methods for mitigating the effects of future movement of the hillside on Elberon Avenue. The scope of our engineering services consisted of a site reconnaissance, a review of the City of Cincinnati files for this area, a review of available

topographic maps of the area, a subsurface exploration, obtaining representative soil and bedrock samples, laboratory testing and analyses of field and laboratory data.

FIELD EXPLORATION

This phase of work consisted of a site reconnaissance by our Project Geotechnical Engineer and the drilling of 12 test borings numbered 1 through 4 and 6 through 13. Test boring No. 5 was eliminated from the initially proposed exploration program. The locations of the test borings were determined by our Project Geotechnical Engineer in the field and later surveyed by the City of Cincinnati. The ground surface elevations at the locations of most of the test borings were determined by the City of Cincinnati Engineering Department. Where the ground surface elevation was not provided, we interpolated between the spot elevations provided to us by the City of Cincinnati.

The appropriate locations of the test borings are shown on the Boring Plan, Drawings 91445E-1 and 91445E-2 included in the Appendix to this report. The base map for the Boring Plans is the City of Cincinnati and Hamilton County Metropolitan Topographic Map, 1968 edition. The locations of the test borings as determined by the City of Cincinnati survey are indicated on the Plan, Drawings 91445E-3 and 91445E-4 also in the Appendix. In addition to locating the test borings, 6 cross section elevation surveys were performed by the City of Cincinnati at the locations requested by G. J. Thelen & Associates, Inc. The plan locations of these cross sections are indicated on Drawings 91445E-3 and 91445E-4. The topographic information provided to us by the City of Cincinnati has been shown on the Sections, Drawings 91445E-5 and 91445E-6 also in the Appendix.

The test borings along Elberon Avenue were drilled with a truck-mounted drill rig advancing continuous flight augers. The test borings drilled on the slopes were completed with hand drilling and

sampling equipment because of the limited access to the steep terrain. Split spoon samples in the truck-drilled test borings were obtained ahead of the augers according to the sampling procedures summarized by ASTM D1586. A diamond tip NXM core barrel was used to obtain samples of the bedrock in test boring 1. The split spoon samples in the hand test borings were obtained by driving a standard split spoon sampler with a 35-pound weight falling 30 inches. This procedure results in penetration values 3 to 4 times greater than those of the standard penetration test. Representative portions of the soil and bedrock samples obtained with the split spoon sampler were placed in glass jars, the jars sealed and marked for proper identification. The rock core obtained in the NXM core barrel was placed in a wooden box and the box appropriately labeled. Representative samples of the shale were wrapped in plastic to preserve the shales in situ moisture content.

The Drilling Technician prepared field logs of the subsurface profile noting the soil and bedrock descriptions, stratifications, groundwater, standard penetration resistance, rock core recovery and other pertinent data concurrent with drilling.

LABORATORY REVIEW

Following the completion of the field work, the jarred split spoon samples and the boxed rock core samples were transported to our Soil Mechanics Laboratory. Each sample was reviewed and visually classified by the Project Geotechnical Engineer. The Engineer selected representative samples for natural moisture content tests, Atterberg limits tests and slake durability tests. The results of the laboratory tests are presented on the Tabulation of Laboratory Tests and the Slake Durability Test Tabulation included in the Appendix.

The test boring logs included in the Appendix were prepared by the Project Geotechnical Engineer on the basis of the Drilling

Technician's field logs, a visual review of the samples and the results of the laboratory tests. A Soil Classification Sheet to describe the terms and symbols used on the test boring logs is also included in the Appendix.

Upon completion the test borings, in the road and sidewalk were backfilled with a cement-bentonite slurry and the remaining borings were backfilled with the cuttings.

The lines identifying the changes between soil and bedrock types on the test boring logs were determined by interpolation and are approximate. Only a change which occurs within a sample can be precisely determined. The transition between soil and bedrock types may be abrupt or gradual.

BACKGROUND INFORMATION

The study area consists of the hillside upslope of Elberon Avenue between Purcell Avenue, northeastwardly to about 500 feet southwest of Mt. Hope Avenue. In addition, the hillside above Elberon Avenue from the intersection of Elberon and Mt. Hope Avenues, eastwardly and then northeastwardly to the intersection of the English Street ramp onto Elberon Avenue, is included. The study area also includes the hillside downslope from Elberon Avenue between about 330 and 580 feet east of Purcell Avenue.

The 1912 and 1968 topographic maps of the study area indicate that the alignment of Elberon Avenue has not changed significantly. No significant modifications to the contours upslope of Elberon Avenue were detected after reviewing topographic maps between 1968 and 1912. The topographic map scales range from 1"=200' to 1"=400', therefore only large changes in the topography could be noticed from a review of these documents. Although no major modifications to the topography along Elberon Avenue has occurred, residential developments have been constructed over the past 80 years at the tops of the ridges. This construction has altered the topography

at the tops of the ridges and has resulted in the placement of some fill over the crests of the ridges and the upper parts of the slopes.

It appears, after reviewing the topographic maps and the recent cross sections, that Elberon Avenue was most likely constructed by cutting into the hillside on the upslope side and by placing shallow to moderate fills along the downslope side of the right-of-way.

It is our understanding that on-going sloughing and landslides on the slopes above Elberon Avenue have created maintenance and safety concerns for the City. Our review of the City documents indicate that the amount of earth movement and landslides was extremely high during the spring and early summer of 1973. The documents indicate that a substantial landslide involving a vertical drop of about 100 feet and a width of about 150 feet was observed below an apartment complex and above Elberon Avenue. The specific location of the landslide was not identified. In addition to this large landslide above Elberon Avenue, several smaller recent landslides also have occurred.

In addition, a major landslide developed on the southeast, downslope side of Elberon Avenue southwest of Mt. Hope Avenue. The southeast side of Elberon Avenue was eventually stabilized by the construction of a drilled pier retaining wall along the southeast side of Elberon Avenue. The approximate southwest end of this drilled pier retaining wall is shown on the Plan, Drawing 91445E-3. The subsurface profile along and downslope of the drilled pier retaining wall was evaluated by the H. C. Nutting Company by drilling 10 test borings. Copies of the test boring logs for test borings B-1, B-2, B-3 and B-8 which are located near the southwest end of this wall and closest to our downslope study area have also been included in the Appendix for reference. The locations of these test borings are also shown on the Plan, Drawing 91445E-3.

There is also a conventional reinforced concrete cantilevered retaining wall of older vintage located southeast of the sidewalk along Elberon Avenue from just southwest of the southwest end of the drilled shaft wall to midway between our test borings 3 and 4.

Continual movement of the landslide southeast of Elberon Avenue has occurred. The drilled shaft wall which was installed has protected Elberon Avenue from additional movement. Southwest of the southwest end of the existing drilled shaft wall, downslope movement of the sidewalk, curb and older concrete retaining wall has occurred. At the present time the sidewalk is about 1 foot below the top of the curb. It appears that minor translation of the concrete wall southeast of the sidewalk has also occurred.

GENERAL SITE CONDITIONS

Several landslides involving small to moderate areas of the slope were observed along and above Elberon Avenue within the study area southwest of Mt. Hope Road at the time of our field reconnaissance. In addition, a relatively large older landslide and some small local slumps were also observed above Elberon Avenue within the study area east of Mt. Hope Road. These landslides have deposited significant quantities of materials behind the curbs and at the toe of the slope. The materials exposed within these slides and at the scarp consist of bedrock, shale and thinly bedded limestone, and soils derived from weathering of the bedrock. A retaining wall about 4 feet high has been built at the toe of the slope along the turn in Elberon Avenue at about 330 feet east of Mt. Hope Avenue.

The ground surface slopes upward from Elberon Avenue at 1 to 1.5 horizontal to 1 vertical for about 30 to 60 vertical feet and then flattens to about 2 horizontal to 1 vertical. The change in elevation from toe to crest ranges from about 100 to 125 feet. It appears that the bottom parts of the slopes, which are at 1 to 1.5 horizontal to 1 vertical, were steepened above the natural slope

when Elberon Avenue was constructed. These steepened cut slopes have exposed the bedrock, shale and thinly bedded limestone.

The generalized subsurface profile encountered on the slopes and at the toes of the slopes along the uphill side of Elberon Avenue consist of very shallow overburden clayey soils and then bedrock, shale and thinly bedded limestone. The previous test borings drilled by the H. C. Nutting Company and the recent test boring drilled along the crest of the landslide on the downhill side of Elberon Avenue encountered moderate depths of fill and then stiff overburden silty clays and clays, and then bedrock at depths of about 10 to 13 feet. The materials encountered in the recent test borings and their properties are discussed in the following paragraphs.

Test boring 4 drilled on the southeast side of Elberon Avenue, southwest of the southwest end of the existing drilled shaft wall encountered 7 feet of variable fill consisting of stiff silty clays and shale with limestone floaters and cinders. Between the 7 and 10.8 foot depths, colluvium consisting of moist stiff silty clay with shale fragments and limestone floaters was encountered. The colluvium has developed from the in-place weathering of the shale and limestone bedrock higher on the hillside, and that material being moved down the slopes by previous glaciation and gravity. Because of the nature of deposition of colluvium and seepage out of the bedrock, a weak zone develops at the soil/bedrock interface. The bottom of the sliding mass in colluvial/shallow bedrock hillsides generally occurs at this weak zone along the soil/bedrock interface. The colluvium classifies CL according to the Unified Soil Classification System (USCS) with a liquid limit of 46 and a plasticity index of 23. The natural moisture contents are in the upper teens.

Initially in the test borings drilled at the toes of the slopes, asphalt and fill extended to depths ranging from 0.5 to 2 feet.

Initially in the test borings drilled higher on the slope above the roadway cut, 3 to 6 inches of topsoil was encountered over medium stiff silty clays with limestone floaters (colluvium). The colluvium extended to depths ranging from about 4 to 8 feet.

Beneath the asphalt, colluvium and fill, bedrock was encountered for the remaining depths drilled. Bedrock was encountered along the toes of the slopes within 0.5 to 2 feet of the ground surface and at depths of about 4 to 8 feet higher on the slopes. The bedrock in the Greater Cincinnati Area consists of Ordovician Age, horizontally bedded shale and limestone. For all practical purposes, the bedding is horizontal and can be considered to be level over localized areas. The geologic quadrangle map of the Cincinnati Area suggests that the bedrock in the study area may dip downward to the north or north by northwest at 0.2 to 0.5 percent. The approximate elevation of the bedrock members determined from this geologic map are shown on the Geologic Column in the Appendix. The bedrock above Elberon Avenue east of Mt. Hope consists of the upper part of the Eden or Kope Formation. The bedrock above Elberon Avenue west of Mt. Hope Road consist of the upper part of the Eden or Kope Formation and the lower part of the Maysville Formation. The Eden or Kope Formation is one of the weakest bedrock units in the Greater Cincinnati Area. Landslides and slope stability problems in the overburden above this bedrock are common.

The bedrock in the Greater Cincinnati Area can be broadly categorized into three zones on the basis of color and degree of weathering. The uppermost zone is generally brown and gray in color and consists of a very soft highly weathered shale and thinly bedded limestone. In this zone the shale has almost weathered into a clayey soil, yet still retains the properties of a very soft shale. Clay seams in this zone are common. The intermediate zone is generally olive brown and consists of soft weathered shale and thinly bedded limestone. The parent bedrock is the gray soft to moderately tough shale and thinly bedded limestone. Either or both

of the weathered zones may be absent at a particular location as a result of variations in weathering, erosion and previous excavations.

The limestone layers in the bedrock are very hard in comparison to the shale. The thickness of limestone layers varied from approximately 1/4 to 4 inches in the recovered rock core of test boring 1. Generally, experience has found that the limestone layers in the Greater Cincinnati Area range from about 1/8 inch to 8 inches in thickness, although thicker layers or concentrations of layers are occasionally encountered. An individual layer can pinch in and out in thickness in plan. The rock core in test boring 1 indicates that the bedrock ranges from about 79 to 99 percent shale and 21 to 1 limestone. Generally, the Eden or Kope Formations and the lower part of the Maysville Formations contain lesser amounts of limestone than the middle and upper parts of the Maysville Formation.

The natural moisture contents of the weathered and highly weathered shales in the test borings are generally in the low to middle teens. Normally these zones have moisture contents in the middle teens to low twenties. The natural moisture contents of the parent gray shale are generally less than 10 percent, but occasionally extend to the middle teens.

The durability of the shale and resistance to weathering can be approximated by the slake durability test. Slake durability tests were performed on representative samples of the unweathered and slightly weathered shale using the State of Kentucky method 64-513. The results of the slake durability tests indicate slake durability indices ranging from 10.5 to 63.0 for an average slake durability index of about 37.

Groundwater measurements were recorded in the test boring at various times during and following the completion of drilling.

Notations relative to groundwater are shown on the bottoms of the test boring logs. Groundwater in this soil profile should be expected seasonally along the soil/bedrock interface and along the limestone layers within the bedrock.

CONCLUSIONS AND RECOMMENDATIONS

Based upon our engineering reconnaissance of the site, the results of the test borings, a visual examination of the samples, the laboratory tests, our review of the historical data and topographic maps, our understanding of the problems with the existing conditions, and our experience as Consulting Soil and Foundation Engineers in the Greater Cincinnati Area - Northern Kentucky Area, we have reached the following conclusions and offer the following opinions and recommendations.

The conclusions, opinions and recommendations of this report have been derived by relating the general principles of the discipline of Civil Engineering (Soil Mechanics) to the existing conditions. Because changes in surface, subsurface and climatic conditions as well as economic fluctuations and the broadening of engineering knowledge can occur with time, we recommend for our mutual interest that the use of this report be restricted to this specific project.

If conditions are encountered in the field during construction which vary from the facts of this report, we recommend that our office be contacted immediately in order that we may examine such changed conditions in the field and make appropriate recommendations in light of the contract documents.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around this site.

We have performed the test borings and laboratory testing for our evaluation of the site conditions and for the formulation of the conclusions and recommendations of this report. We assume no responsibility for the interpretation or extrapolation of the data by others.

It is our opinion that continued downslope movement of the landslide southeast of Elberon Avenue should be expected. The effect of this movement where the existing drilled shaft wall is located along Elberon Avenue should be insignificant provided that the existing wall has been properly designed. Movement of this landslide southwest of the southwest end of the existing drilled shaft retaining wall has already disturbed the sidewalk and in our opinion will ultimately affect Elberon Avenue. To maintain stability of Elberon Avenue and to prevent this landslide from further encroaching onto the right-of-way, we recommend that the drilled shaft retaining wall be extended to the west. The recommended southwest end of the drilled shaft retaining wall is about 70 feet of southwest of test boring 4 and is identified on the Plan, Drawing 91445E-3 in the Appendix. We recommend that this wall be extended according to the original design accounting for the variations in depth of soil above the soil-bedrock interface. If the original design is not available then the new wall should be designed according to our specific recommendations provided in the following paragraphs 1 through 7.

The natural slope of the hill above the cut above Elberon Avenue is at about 2 to 2.5 horizontal to 1 vertical. It has been our experience that shallow bedrock slopes at this ratio will experience downslope creep movement of the overburden soils and possibly landslides in the overburden soils. The amount of creep movement and size and frequency of landslides will be accelerated during periods of heavy precipitation and extended wet periods, typically in the late winter and spring months of a given year. The amount of movement and likelihood for movement increases

significantly below about El. 700 where the bedrock is part of the Eden or Kope Formation.

The hillside upslope of Elberon Avenue was steepened when Elberon Avenue was constructed. The existing cut slopes are at about 1 to 1.5 horizontal to 1 vertical. Although the bedrock is stable with regards to a deep-seated failure at these slopes, weathering and erosion will deteriorate the shale into a soil-like material which is not stable at these steep slopes. Also, the shale below the limestone layers will weather, soften and slough, and allow small to large pieces of limestone to slide down the hillside.

The resistance to weathering of shales can be correlated to the slake durability index. The slake durability index of representative samples of the bedrock ranges from 10.5 to 63.0 for an average slake durability index of about 37. Research performed by regional departments of transportation indicate that where the slake durability index is less than about 50, the shale should be considered to behave as a soil-like shale. Typical cut slope recommendations in soil-like shale range from flatter than 2:1, horizontal to vertical, to about 1:1. Generally slopes of 2:1 or flatter are used unless a roadside ditch is provided to collect the sliding material. Shales which have a slake durability index between about 51 and 95 are considered to be intermediate shales and the cut slopes generally can be steepened to 1:1 to 0.5:1 with mid-slope benches and/or roadside ditches of at least 12 to 15 feet. The purpose of the mid-slope benches and the ditches is to provide an area to collect material as it weathers from the cut slope as part of the highway maintenance program. The amount of accumulated material and frequency of maintenance is dependant upon the durability of the shale and the local weather conditions, specifically rainfall and freeze-thaw cycles. Rock-like shales generally have slake durability indices greater than 94.

It is our opinion that continual erosion and weathering of the bedrock cut slopes will occur. As these shales weather to a soil-like material and become saturated, their weight will exceed the shear strength along the interface of the intact bedrock and the weathered surface will slide downslope. Above the bedrock cuts where the slopes are flatter (in the range of 2 to 2.5 horizontal to 1 vertical) and covered with the overburden soils and topsoil, weathering of the shale surface is substantially reduced. Because of the steep natural slope of the bedrock surface and the weak zone along the soil/bedrock interface, downslope movement of the overburden soils above the cut slopes is also possible. This movement can occur as long term creep, which will take years or tens of years to notice, or as a landslide which will occur within a matter of days or weeks. The ultimate results of movement of the upper or lower parts of the slopes will be an accumulation of debris, soils, limestone, etc. along the toes of the slopes and the uphill side of the pavement. In addition, as the shale weathers below the limestone, slabs of limestone also will slide down the slopes and enter the roadway. Both of these conditions represent safety and maintenance problems.

We have considered several methods to protect Elberon Avenue, the right-of-way, and the traffic from the sloughing, landsliding and slope movement. One approach is to alter the topography to stabilize the hillside and prevent further slope movement. To accomplish this, the hillside would need to be flattened to at least 2 horizontal to 1 vertical which is not practical because of the developments on the crest of the slope and the limits of the city owned property. A buttress or retaining structure may be required to retain the overburden at the top of the cut slope. A general flattened slope is shown in section on Cross Section 3, Drawing 91445E-5.

Another alternative is to provide slope protection to reduce further erosion and stabilize the outface of the slope. For this

option to be successful, the overburden soil will need to be excavated to expose the bedrock and surface treatment applied to prevent erosion, weathering and subsequent sloughing of the bedrock surface. One method of providing protection would be to construct a modular block wall, such as Loffelstein, Keystone or other locally available concrete units. These units will need to extend to the top of the cut slopes. Also an earth buttress will be required above the top of the modular block walls to retain the overburden and prevent the overburden from sliding over the new wall and/or pushing out the top portion of the new wall above the bedrock surface.

Other types of slope protection such as vegetation mats, erosion mats and other types of synthetic erosion control could also be used to protect the surface of the cut slopes, but require that the mat and vegetation cover be adequately anchored into the stable bedrock material. With this option, complete removal of the overburden soils and existing landslides may not be required, however, the anchors would need to extend through the overburden soils and sufficiently into the bedrock to adequately pin and anchor the slope protection and prevent movement of the existing overburden. This alternative, like the construction of a masonry wall facing, would need to extend along the entire surface of the steep cut slopes and possibly 10 to 15 feet onto the 2 horizontal to 1 vertical natural slopes above the cut slopes. A similar earth buttress or retaining structure will be required above the cut slopes to retain the overburden soils. These types of systems will destroy all existing natural vegetation and, in our opinion, will be very expensive. A generalized concept of this alternative is shown on Cross Section 5, Drawing 91445E-6.

Another alternative is to prevent the instability of the slopes from adversely affecting the right-of-way of Elberon Avenue. One method to accomplish this would be to excavate a collection ditch along the uphill side of the roadway. The philosophy for this

alternative is to provide an area to collect the landsliding mass and falling debris before it enters onto the roadway. This collection ditch will need to be routinely cleaned and maintained. For such a ditch to be effective, the bottom will need to be about 6 to 8 feet below the level of the road and the ditch will need to be about 12 feet wide. Drains will need to be provided at the bottom of ditch and these drains tied into the storm sewer system to remove the collected water. See a generalized templet on Cross Section 4 on Drawing 91455E-6. This will require the removal of about 50 to 80 cubic yards per lineal foot of rock and the installation of a guard rail along the upslope side of the roadway. In addition, this will require the relocation of some of the utilities. The rock excavation will extend significantly into the parent gray shale and limestone and, in our opinion, will be difficult. The aesthetics of this deep trench and steep rock cut without any surface vegetation should be taken into consideration for this alternative.

Another method of preventing the sloughing and landsliding from affecting the roadway would be to construct a wall just upslope of the upslope curb of Elberon Avenue similar to the short wall east of Mt. Hope Road. This wall would need to extend 3 to 6 feet above the level of the pavement. The space between the back of the wall and the slope may need to be shaped dependent upon the height of the wall and the topography to provide an adequate area to collect the falling debris. A drainage system should be incorporated into the wall design to collect the runoff from the hillside upslope from Elberon Avenue. For this option to provide long-term service, cleaning the debris from behind the wall will need to be incorporated as part of a routine maintenance program. In addition, when any large landslides occur, the collected debris will need to be removed within a short period. If the space between the wall and the slope is allowed to collect and be filled with debris, then any new sliding material will slide over the top of the wall and onto the roadway, mitigating the effects of this

construction. A typical wall section is shown on Cross Section 1, Drawing 91445E-5.

After considering the aesthetics, cost and constructability of the above alternatives, we recommend that a cast-in-place concrete cantilever retaining wall be constructed along the upslope curb of Elberon Avenue within the study limits. We recommend that the wall be located as close to the curb as possible to provide the largest collection area and increase the effectiveness of this system. Our specific recommendations for the design and construction of a retaining wall along the upslope side of Elberon Avenue are described in the following paragraphs numbered 8 through 16. The approximate limits of the retaining walls are shown on the Plans, Drawing 91445E-3 and 91445E-4 included in the Appendix.

1. The drilled shafts should be designed to resist a lateral pressure estimated by an equivalent fluid weight of 90 pounds per cubic foot. This fluid pressure has considered the traffic surcharge and the upslope side of the drilled shafts to be located at least 4 feet beyond the edge of the pavement. This equivalent fluid pressure includes an appropriate factor of safety for stability. To achieve the factored design loads to use in the concrete design, this fluid pressure should be multiplied by 1.2 and not the customary factor of 1.7 since the earth pressures already include a geotechnical safety factor.
2. The allowable passive pressure on the downhill side of the drilled shafts below the surface of the bedrock will increase with increasing penetration into the less weathered and parent bedrock. The test borings indicate that the weathered zone at the location of the proposed drilled shaft wall is about 8 feet thick. We recommend that the passive pressure on the drilled shafts between the ground surface and a depth of 3 feet below the top of

the bedrock surface on the downhill side of shafts be neglected. Below a depth of 3 feet into the weathered zones of the bedrock, an allowable passive pressure of 4000 pounds per square foot linearly increasing at the rate of 660 pounds per square foot per foot of depth to a maximum of 12,000 pounds per square foot can be used in the weathered zones. The allowable passive pressures on the drilled shafts can be increased to 20,000 pounds per square foot in the parent gray shale and thinly bedded limestone. A spreading factor of 2.5 times the diameter of the drilled shaft can be used to determine the total passive resistance. Where the center to center spacing of the drilled shafts is less than 2.5 diameters, the spreading factor should be limited to the center to center spacing of the drilled shafts divided by the shaft diameters.

3. Unless lagging is used to the top of the bedrock surface, soil arching between the drilled shafts will be required to prevent downslope movement of the soils between the top of the wall and the bedrock surface. We recommend that the clear distance between the drilled shafts be limited to 1 to 2 feet to allow the arching between the drilled shafts to develop.
4. The shafts should be drilled straight and plumb within about 1.5 percent of their length. The bearing surfaces should be relatively level and cleaned of all loose, wet and disturbed materials prior to placing concrete. Concrete should not be placed through more than 4 inches of water. If the rate of seepage results in more water in the shafts it should be pumped prior to placing concrete or temporary casing should be used. The shafts should be drilled without the use of drilling mud or slurry so that a compressible zone of soft soils does not develop along

the sides of the shafts. A soft zone of soil along the sides of the shaft excavations will reduce the ability of the drilled shaft to support the lateral loads.

5. We recommend that the drilled shafts be at least 24 inches in diameter. Concrete in the drilled shafts should be placed so that it does not contact the sidewalls or the reinforcing steel during placement and become segregated. We recommend that at least the top 10 feet of concrete be vibrated.
6. Minor seepage into the drilled shaft excavations and local sloughing of the fill soils should be expected. It is our opinion that the seepage and sloughing should be minimal and provided that the shaft concrete is installed immediately upon completion of each excavation, temporary casing will not be required. Should excessive groundwater or caving be experienced the use of temporary casing may be required. We recommend that the contract documents include an item for casing any individual shaft on a cost per cased shaft basis should it be found necessary by the Project Geotechnical Engineer.
7. We recommend that the installation of the drilled shafts be reviewed by the Project Geotechnical Engineer or representative thereof to determine that the subsurface profile is consistent with that encountered in the test borings and that the shafts are installed in accordance with the design criteria.
8. We recommend that the downslope edge of the cast-in-place cantilever retaining wall be located about 3 feet upslope from the existing curb. The retaining wall should be at least 3 to 6 feet above the street pavement dependent

upon the upslope topography and the size of the collection area.

9. The footings for the retaining wall should penetrate the existing fills and overburden soils and extend at least 6 inches into the bedrock, shale and thinly bedded limestone. The allowable bearing pressures will depend upon the material encountered at footing elevation. The test borings suggest that along the majority of the alignment, the weathered zone of the bedrock should be encountered at footing elevation. At the westernmost end of the retaining wall, the parent bedrock may be encountered at footing elevation. We recommend that the retaining wall be designed based upon an allowable bearing pressure of 8000 pounds per square foot, full dead and live loads. The bearing pressure can be increased to 20,000 pounds per square foot where the parent bedrock is encountered at footing elevation. Based upon the test borings, it appears that the parent bedrock should only be encountered at the western end of the retaining wall.
10. An ultimate friction factor between the bottom of the footing and the bedrock of 0.4 should be used. A passive pressure on the toe of the footing or on a keyway below the bedrock surface and below frost depth of 4000 pounds per square foot can be used. This passive pressure requires that the concrete be placed directly against cleaned surfaces of the bedrock. If both frictional resistance and passive pressure are used to resist sliding, both the ultimate frictional resistance and passive pressure should each be reduced by 33 percent.
11. The bottom of the footing should be located at least 30 inches below final grade. This is the accepted depth of

maximum frost penetration in the Greater Cincinnati Area. Retaining wall footings should also be located below a line drawn upward at 2 horizontal to 1 vertical from the invert of any paralleling utilities.

12. We recommend that the retaining walls be designed to resist a lateral pressure estimated by an equivalent fluid weight of 90 pounds per cubic foot. This equivalent fluid weight considers a maximum slope of 2 horizontal to 1 vertical above the wall and saturated backfill.
13. The footings should be excavated to neat lines and grades and concrete placed directly against the bedrock without forming. The bearing surfaces should be free of any loose, crusted, frozen or wetted materials and consist of fresh shale near its natural moisture content when concrete is placed. The shale bedrock will deteriorate rapidly when it is exposed to the environment. If the shale deteriorates prior to placing concrete, it should be removed to expose fresh materials. If limestone is encountered at footing elevation, it should also be removed to expose the underlying shale. We recommend that concrete be placed in the footing excavations the same day that they are dug.
14. We recommend that footing excavations be reviewed by the Project Geotechnical Engineer or a representative thereof prior to placing concrete. The purpose of this review is to determine that the bearing materials and surfaces are consistent with the recommendations in this report.
15. In addition to collecting the debris and landslide material, water will also collect behind the retaining wall. A drainage system will be required to collect and adequately remove this water. We recommend that this

drainage system consist of several levels of weepholes through the wall and a granular collector and pipe system on the downslope side of the wall. The lower weepholes should be located at the top of the footing and spaced 15 to 25 feet apart. A granular collector encased in filter fabric should also be installed above the footing on the upslope side of the wall to assist in removing any accumulated water in the backfill. The intermediate weepholes should be located about 6 inches above downslope grade and be spaced about 10 feet apart. The upper weepholes should be located at about the third point below the top of the wall and be spaced about 20 feet on center. The purpose of these upper weepholes is to assist in removing surface water which may pond behind the walls as a result of movement of the hillside and or plugging of the lower weepholes. To collect the water on the downslope side of the wall and minimize the potential for water flowing onto the pavement the water from the weepholes should be collected along the downslope side of the wall. We recommend that the collection system consist of a rigid perforated pipe and a gravel collector wrapped in a filter fabric. The fabric should be covered with about 1 foot of 2 to 3 inch diameter stone to the ground surface. The pipe should be tied into the storm sewer system at selected intervals.

16. The purpose of this retaining wall is to prevent encroachment of the sliding mass and debris onto the roadway. The long-term performance of this solution is dependent upon continual removal of the material which collects upslope of the retaining wall. Failure to remove this material will ultimately cause the sloughing soil and rock to slide over the top of the wall. It is important that removing the materials which collect

behind the wall be included as part of routine City maintenance.

We have included in the Appendix to this report a reprint of "Important Information About Your Geotechnical Engineering Report" published by ASFE, The Association of Engineering Firms Practicing in the Geosciences, which our firm would like to introduce to you at this time.

We appreciate this opportunity to be your Geotechnical Consultants for this engineering study. Should you have any questions concerning this report or require additional information, please contact the undersigned.

Respectfully submitted,
G. J. THELEN & ASSOCIATES, INC.

Robert J. Huzjak, P.E.
Civil (Geotechnical) Engineer

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Vice President, Engineering

RJH/DBT/df

91445E

Copies submitted: 2-Client

APPENDIX

ASFE Report Information

Geologic Column

Tabulation of Laboratory Tests

Slake Durability Test Tabulation

Test Boring Logs

Soil Classification Sheet

Boring Plan, Drawings 91445E-1 and 91445E-2

Plan, Drawings 91445E-3 and 91445E-4 (In Pocket)

Sections, Drawings 91445E-5 and 91445E-6 (In Pocket)

IMPORTANT INFORMATION

ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

More construction problems are caused by site subsurface conditions than any other factor. As troublesome as subsurface problems can be, their frequency and extent have been lessened considerably in recent years, due in large measure to programs and publications of ASFE/The Association of Engineering Firms Practicing in the Geosciences.

The following suggestions and observations are offered to help you reduce the geotechnical-related delays, cost-overruns and other costly headaches that can occur during a construction project.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

A geotechnical engineering report is based on a subsurface exploration plan designed to incorporate a unique set of project-specific factors. These typically include: the general nature of the structure involved, its size and configuration; the location of the structure on the site and its orientation, physical concomitants such as access roads, parking lots, and underground utilities, and the level of additional risk which the client assumed by virtue of limitations imposed upon the exploratory program. To help avoid costly problems, consult the geotechnical engineer to determine how any factors which change subsequent to the date of the report may affect its recommendations.

Unless your consulting geotechnical engineer indicates otherwise, *your geotechnical engineering report should not be used.*

- When the nature of the proposed structure is changed, for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one;
- when the size or configuration of the proposed structure is altered;
- when the location or orientation of the proposed structure is modified;
- when there is a change of ownership, or
- for application to an adjacent site

Geotechnical engineers cannot accept responsibility for problems which may develop if they are not consulted after factors considered in their report's development have changed

MOST GEOTECHNICAL "FINDINGS" ARE PROFESSIONAL ESTIMATES

Site exploration identifies actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing are extrapolated by geo-

technical engineers who then render an opinion about overall subsurface conditions, their likely reaction to proposed construction activity, and appropriate foundation design. Even under optimal circumstances actual conditions may differ from those inferred to exist, because no geotechnical engineer, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than a report indicates. Actual conditions in areas not sampled may differ from predictions. *Nothing can be done to prevent the unanticipated, but steps can be taken to help minimize their impact.* For this reason, *most experienced owners retain their geotechnical consultants through the construction stage*, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site

SUBSURFACE CONDITIONS CAN CHANGE

Subsurface conditions may be modified by constantly-changing natural forces. Because a geotechnical engineering report is based on conditions which existed at the time of subsurface exploration, *construction decisions should not be based on a geotechnical engineering report whose adequacy may have been affected by time.* Speak with the geotechnical consultant to learn if additional tests are advisable before construction starts.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical report. The geotechnical engineer should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND PERSONS

Geotechnical engineers' reports are prepared to meet the specific needs of specific individuals. A report prepared for a consulting civil engineer may not be adequate for a construction contractor, or even some other consulting civil engineer. Unless indicated otherwise, this report was prepared expressly for the client involved and expressly for purposes indicated by the client. Use by any other persons for any purpose, or by the client for a different purpose, may result in problems. *No individual other than the client should apply this report for its intended purpose without first conferring with the geotechnical engineer. No person should apply this report for any purpose other than that originally contemplated without first conferring with the geotechnical engineer.*

GEOLOGIC FORMATIONS AT CINCINNATI, OHIO					SECTION	MEMBERS	
MAIN DIVISIONS		FORMATION	GUIDE FOSSILS				
SERIES	SUB-SERIES						
CINCINNATI	RICHMOND	ARNHEIM	• Indicates restricted index fossils			OREGONIA and SUNSET 65'± exposed	
	MAYSVILLE	McMILLAN	PLATYSTROPHIA ponderosa	• Homotrypa pulchra • Platystrophia ponderosa var. auburnensis		Mt. AUBURN 15'	
		FAIRVIEW	HEBERTELLA	Glyptocrinus ayeri • Platystrophia carryvillensis • Plectrothis jamesi Rafinesquina nasuta • Amphitichas halli Flexicalymene, Isotelus		CORRYVILLE 44'	
				BYTHOPORA gracilis HALLOPORA ramosa and rugosa	• Dekayella hilli • Platystrophia cypha • Resserella fairmountensis <i>"Shingled Rafinesquina zone"</i>		BELLEVUE 28'
				CONSTELLARIA, DEKAYIA ESCHAROPORA, PLECTORTHIS	• Glyptocrinus decadactylus • Platystrophia pauciplicata Rafinesquina squamula • Byssonychia acutirostris • Pterinea cincinnatiensis • Cyclonema inflatum Strophomena planiconvexa		FAIRMOUNT or "HILL QUARRY BEDS" 60'
	EDEN	LATONIA	HALLOPORA dalei	<i>Recurrence of Resserella</i> • Batostoma maysvillensis • Escharopora falciformis • Platystrophia hapensis • Plectrothis fissicosta • Cyclonema gracile		Mt. HOPE 53'	
				<i>"Resserella zone"</i> • Dekayella obscura • Halloporella nodulosa (large bryozoa fauna) Plectrothis neglecta Sinuites cancellatus Odonopleura crossata		McMICKEN 69'	
				<i>Recurrent Triarthrus</i> • Homotrypa curvata praecipua • Aspidopora eccentrica • Stigmatella nicklesi • Resserella emaculata brevicula • Cyrtolites carinatus • Lophospira tenuistriatus • Sinuites granistriatus (large pelecypod fauna) Flexicalymene granulosa Trilobite tracks Climacograptus typicus		SOUTHGATE 122'	
				• Aspidopora areolata • Atactoporella newportensis • Resserella fullonensis • Strophomena halli • Pterinea mucronata <i>Triarthrus Fauna</i>		ECONOMY 52'	
							FULTON BEDS
CYNTHIANA			(Kentucky exposures Vicinity of Moscow, O.) • Escharopora ponderosa • Platystrophia trentonensis Cryptolithus tessellatus • Resserella bussleri • Whiteavesia cincinnatiensis • Cyclonema varicosum Triarthrus eatoni		Pt. PLEASANT or "RIVER QUARRY BEDS" BROMLEY SHALE		

USGS
ELEVATIONS

813

753

700

631

509

GEOLOGIC COLUMN

Prepared from a publication of the Cincinnati Museum of Natural History,
"Fossils and Strata of the Ordovician" by Caster, Dalve and Pope, 1961.

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GEOTECHNICAL SERVICES
ELBRON AVENUE CUT SLOPES
CINCINNATI, OHIO
91445E

TABULATION OF LABORATORY TESTS

<u>Boring Number</u>	<u>Sample Number</u>	<u>Depth, Ft.</u>	<u>Moisture Content, %</u>	<u>Atterberg Limits</u>			<u>USCS Classification</u>
				<u>LL</u>	<u>PL</u>	<u>PI</u>	
1	RC-2	3.2- 3.4	7.9				
	RC-2	5.7- 5.9	6.9				
	RC-3	10.5-10.7	4.4				
	RC-3	12.2-12.4	5.0				
4	3	5.0- 6.5	17.7				
	4	7.5- 9.0	19.9	46	23	23	CL
	5A	10.0-10.8	17.0				
	5B	10.8-11.5	13.4				
	6	12.5-14.0	13.5				
	7	15.0-16.5	9.0				
	8	17.5-19.0	7.8				
6	2	2.5- 3.3	11.4				
	3	5.0- 5.2	11.0				
8	2	2.5- 3.0	9.1				
10	2	2.5- 3.2	13.6				
	3	5.0- 5.4	4.0				
12	2	2.5- 3.5	12.7				
	3	5.0- 5.2	14.3				
	4	7.5- 8.5	9.0				
	5A	10.0-10.3	12.0				
3	2	2.5- 3.0	10.4				
	3	5.0- 5.3	5.9				

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City of Cincinnati
 Geotechnical Services
 Elberon Avenue Cut Slopes
 Cincinnati, Ohio
 91445E

SLAKE DURABILITY TABULATION

BORINGS	SAMPLES	DEPTH	NATURAL WATER CONTENT %	SLAKE DURABILITY		DESCRIPTION OF FRAGMENTS AFTER TEST
				DRY WT. INITIAL	DRY WT. FINAL	
1	RC-2	3.2-3.4	7.9	605.0	203.76	33.6 Fragments and slivers, some slightly rounded pieces.
1	RC-2	5.7-5.9	6.9	665.95	320.47	48.1 Fragments, some rounded intact pieces.
1	RC-3	10.5-10.7	4.4	595.88	367.54	61.7 Intact slightly rounded pieces, some fragments and slivers.
1	RC-3	12.2-12.4	5.0	629.67	396.75	63.0 Fragments, some rounded intact pieces, trace slivers.
6	2	2.5-3.3	11.4	193.59	38.93	20.1 Rounded piece (1), trace fragments.
8	2	2.5-3.0	9.1	203.83	21.41	10.5 Fragments and slivers.
12	2	2.5-3.5	12.7	239.82	48.82	20.4 Rounded pieces (3), trace fragments.



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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 1
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE			
				Cond	Blows/6"	No.	Type Rec.
699.0	SURFACE	0.5					
698.5	ASPHALT.	1.7		I	12/19/50	1	DS 16"
		2.5			/4"		
697.3	Gray and brown moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).						
696.5	Gray moist soft slightly weathered SHALE and thinly bedded LIMESTONE (bedrock).		5			2	RC 54" 60"
		7.5					
691.5	Gray moist soft slightly weathered SHALE and thinly bedded LIMESTONE. The limestone is hard and in 1/8 to 1/4 inch beds. Approximately 99 percent shale and 1 percent limestone (bedrock).		10			3	RC 49" 60"
		12.5					
686.5	Gray moist soft to moderately tough SHALE and thinly bedded LIMESTONE. The limestone is hard and in 2 to 4 inch beds. Approximately 79 percent shale and 21 percent limestone. (bedrock).		15				
	Bottom of test boring at 12.5 feet.						
	Note: Good water return.		20				
			25				

Datum USGS Hammer Wt. 140 Lbs. Hole Diameter 5" Foreman MW
 Surf. Elev. 699.0 Ft. Hammer Drop 30 In. Rock Core Dis. Engineer RJH
 Date Started 11/13/91 Pipe Size 0.D.2 In. Boring Method CFA Date Completed 11/13/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION 4.2 FT.
 AFTER - HRS. - FT.
 BACKFILLED Immed HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #. HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 2
PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE				
				Cond	Blows/6"	No.	Type	Rec.
755.0	SURFACE	1.0						
754.0	Brown moist medium stiff SILTY CLAY with limestone floaters.	2.0		I	9/20/50/5"	1	DS	17"
753.0	Brown, trace gray moist stiff SILTY CLAY with limestone floaters and hairlike roots.	2.4						
752.6	Gray, trace brown moist stiff SILTY CLAY, trace bedding planes and hairlike roots.							
	Refusal and bottom of test boring at 2.4 feet.							

NOTE

Datum USGS Hammer Wt. 35 Lbs. Hole Diameter 2" Foreman MW
Surf. Elev. 755.0 Ft. Hammer Drop 30 In. Rock Core Dia. Engineer RJH
Date Started 12/31/91 Pipe Size 0. D. 2 In. Boring Method HM Date Completed 12/31/91

SAMPLE CONDITIONS

D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
AT COMPLETION Dry FT.
AFTER - HRS. - FT.
BACKFILLED Immed. HRS.

BORING METHOD

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #, HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 3
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE			
				Cond	Blows/6"	No.	Type Rec.
687.3	SURFACE	0.2					
687.1	CONCRETE.	2.0		I	20/2"	1	DS 2"
685.3	Black moist medium dense FILL, asphalt, cinders and brick fragments.	4.5		I	50/6"	2	DS 6"
682.8	Brown and olive brown moist very soft highly weathered SHALE and thinly bedded LIMESTONE (bedrock).	7.0	5	I	50/4"	3	DS 3"
680.3	Gray, trace brown moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).	7.7		I	50/2"	4	DS 1"
679.6	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).		10				
	Refusal and bottom of test boring at 7.7 feet.		15				
			20				
			25				

Datum USGS Hammer Wt. 140 Lbs. Hole Diameter 5" Foreman MW
 Surf. Elev. 687.3 Ft. Hammer Drop 30 In. Rock Core Dia. Engineer RJH
 Date Started 11/12/91 Pipe Size 0.D.2 In. Boring Method CFA Date Completed 11/12/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION Dry FT.
 AFTER 24 HRS. Dry FT.
 BACKFILLED 24 HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #. HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

G. J. Thelen & Associates, Inc.

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☐ 10265 Spartan Drive/Cincinnati, Ohio 45215/513-771-5005/Fax 513-771-6669
☐ 3337 Milverton Court/Cincinnati, Ohio 45248-2865/513-574-7137

LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 4
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE			
				Cond	Blows/6"	No.	Type Rec.
678.0	SURFACE	0.4					
677.6	CONCRETE.	2.0		I	3/9/11	1	DS 14"
676.0	Mixed brown, olive brown and black moist stiff FILL, silty clay and shale, trace gravel, cinders and asphalt.		5	I	3/5/8	2	DS 15"
671.0	Brown and olive brown moist stiff FILL, shale, silty clay and clay, some limestone floaters, trace cinders.	7.0		I	3/5/7	3	DS 18"
667.2	Brown, olive brown and gray moist stiff SILTY CLAY with shale fragments and limestone floaters (colluvium). (CL)	10.8	10	I	4/4/4	4	DS 16"
663.5	Olive brown moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).	14.5		I	9/12/19	5A 5B	DS 18"
659.0	Gray, trace olive brown moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).	19.0	15	I	21/50/5"	6	DS 5"
657.7	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).	20.3	20	I	50/6"	7	DS 5"
				I	50/2"	8	DS 1"
				I	50/4"	9	DS 3"
	Refusal and bottom of test boring at 20.3 feet.		25				

Datum USGS
 Surf. Elev. 678.0 Ft.
 Date Started 11/12/91

Hammer Wt. 140 Lbs.
 Hammer Drop 30 In.
 Pipe Size 0.D.2 In.

Hole Diameter 5"
 Rock Core Dia. CFA
 Boring Method CFA

Foreman MW
 Engineer RJH
 Date Completed 11/12/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION Dry FT.
 AFTER 24 HRS. Dry FT.
 BACKFILLED 24 HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #, HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 6
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE				
				Cond	Blows/6"	No.	Type	Rec.
655.7	SURFACE	0.5						
655.2	Brown and gray moist medium stiff FILL, clay and SHALE.	2.0		I	5/1/9	1A	DS	16"
						1B		
653.7	Gray and olive brown moist soft highly weathered SHALE and thinly bedded LIMESTONE (bedrock).	4.5		I	29/50/4"	2	DS	10"
		5.2	5	I	50/2"	3	DS	1"
651.3	Gray, trace olive brown moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).							
650.5	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).		10					
	Refusal and bottom of test boring at 5.2 feet.		15					
			20					
			25					

Datum USGS Hammer Wt. 140 Lbs. Hole Diameter 5" Foreman MW
 Surf. Elev. 655.7 Ft. Hammer Drop 30 In. Rock Core Dia. Engineer RJH
 Date Started 11/13/91 Pipe Size 0.D.2 In. Boring Method CFA Date Completed 11/13/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION Dry FT.
 AFTER 1mm HRS. Dry FT.
 BACKFILLED 1mm HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #, HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 7
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE			
				Cond	Blows/6"	No.	Type Rec.
749.0	SURFACE	0.4					
748.6	TOPSOIL.	1.5		I	4/7/9	1A 1B	DS 18"
				I	43/51/90	2	DS 19"
747.5	Brown and olive brown very moist medium stiff SILTY CLAY with limestone floaters and hairlike roots.	4.5		I	87/97/123	3	DS 17"
		5.5	5	I	141/173	4A 4B	DS 12"
744.5	Brown slightly moist stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).						
743.5	Olive brown, brown and gray moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).		10				
	Bottom of test boring at 5.5 feet.						

NOTE

Datum USGS Hammer Wt. 35 Lbs. Hole Diameter 2" Foreman MW
 Surf. Elev. 749.0 Ft. Hammer Drop 30 In. Rock Core Dia. Engineer RJH
 Date Started 12/31/91 Pipe Size 0.D.2 In. Boring Method HM Date Completed 12/31/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION Dry FT.
 AFTER HRS. FT.
 BACKFILLED Immed. HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #. HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 8
PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE			
				Cond	Blows/6"	No.	Type Rec.
631.5	SURFACE						
	Brown and gray moist medium stiff FILL silty clay with shale fragments and limestone floaters.	2.0		I	4/5/9	1	DS 15"
629.5				I	50/6"	2	DS 6"
626.0	Gray, trace brown moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).	5.5	5	I	50/6"	3	DS 6"
	Refusal and bottom of test boring at 5.5 feet.						
			10				
			15				
			20				
			25				

Datum USGS Hammer Wt. 140 Lbs. Hole Diameter 5" Foreman MW
Surf. Elev. 631.5 Ft. Hammer Drop 30 in. Rock Core Dia. Engineer RJH
Date Started 11/13/91 Pipe Size 0.D.2 in. Boring Method CFA Date Completed 11/13/91

SAMPLE CONDITIONS

D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED Dry FT.
AT COMPLETION Dry FT.
AFTER Dry HRS. Dry FT.
BACKFILLED Immed. HRS.

BORING METHOD

HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #, HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 9
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE			
				Cond	Blows/6"	No.	Type Rec.
731.2	SURFACE	0.3					
730.9	TOPSOIL.	1.5		I	7/9/10	1	DS 18"
729.7	Olive brown and brown very moist medium stiff SILTY CLAY with limestone floaters.	3.2		I	9/23/24	2	DS 18"
728.0	Brown slightly moist stiff SILTY CLAY with limestone floaters.		5	I	200/3"	3	DS 0"
Refusal and bottom of test boring at 3.2 feet.							
Note: Four (4) attempts were made to extend boring beyond the 3.5 foot depth at four (4) different locations by using a hand auger after getting refusal with driven split spoons with the 35 lb hammer.							

FILED
 12/31/91
 12/31/91

Datum USGS Hammer Wt. 35 Lbs. Hole Diameter 2" Foreman MW
 Surf. Elev. 731.2 Ft. Hammer Drop 30 In. Rock Core Dia. Engineer RJH
 Date Started 12/31/91 Pipe Size 0.D.2 In. Boring Method HM Date Completed 12/31/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION Dry FT.
 AFTER - HRS. - FT.
 BACKFILLED Immed. HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #, HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 10
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE				
				Cond	Blows/6"	No.	Type	Rec.
591.8	SURFACE	0.6						
	Mixed brown and gray moist medium stiff to stiff FILL, silty clay and shale with hairlike roots.	2.0		I	5/10/15	1	DS	16"
591.2								
	Olive brown and gray moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).	4.5		I	25/50/3"	2	DS	7"
589.8		5.4	5					
	Gray, some olive brown moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).			I	50/5"	3	DS	2"
587.3								
586.4	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).		10					
	Refusal and bottom of test boring at 5.4 feet.		15					
			20					
			25					

Datum USGS Hammer Wt. 140 Lbs. Hole Diameter 5" Foreman MW
 Surf. Elev. 591.8 Ft. Hammer Drop 30 In. Rock Core Dia. Engineer RJH
 Date Started 11/13/91 Pipe Size 0.D.2 In. Boring Method CFA Date Completed 11/13/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED Dry FT.
 AT COMPLETION Dry FT.
 AFTER 1mm. HRS Dry FT.
 BACKFILLED 1mm. HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #, HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 11
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE				
				Cond	Blows/6"	No.	Type	Rec.
624.8	SURFACE	0.3						
624.5	TOPSOIL.			I	7/8/10	1A	DS	18"
						1B		
	Olive brown and brown, trace gray moist stiff SILTY CLAY with limestone floaters and shale fragments (colluvium).			I	21/27/39	2	DS	18"
				I	61/59/70	3	DS	18"
			5	I	53/97	4	DS	12"
628.3		6.5		I	190/221	5	DS	12"
		7.8		I	241/260	6	DS	10"
	Olive brown, brown and gray moist very soft weathered SHALE and thinly bedded LIMESTONE (bedrock).	8.0		I	250/3"	7	DS	1 1/2"
627.0					300/2"	8	DS	1 1/2"
626.8	Olive brown moist soft weathered SHALE and thinly bedded LIMESTONE.		10					
	Bottom of test boring at 8.0 feet.							

NOTE

Datum USGS Hammer Wt. 35 Lbs. Hole Diameter 2" Foreman MW
 Surf. Elev. 624.8 Ft. Hammer Drop 30 In. Rock Core Dia. Engineer RJH
 Date Started 12/30/91 Pipe Size O.D. 2 In. Boring Method HM Date Completed 12/30/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION Dry FT.
 AFTER Imm HRS. FT.
 BACKFILLED Immed HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #. HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



CIVIL ENGINEERS

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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 12
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE			
				Cond	Blows/6"	No.	Type Rec.
582.7	SURFACE						
580.7	Mixed brown and gray moist medium stiff to stiff FILL, silty clay and shale, some limestone floaters, trace cinders.	2.0		I	6/11/10/0"	1	DS 12"
			5				
				I	29/50/6"	2	DS 12"
				I	50/3"	3	DS 3"
572.4	Olive brown, brown and gray moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).	10.3	10	I	34/50/6"	4	DS 12"
572.2	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).	10.5		I	50/6"	5A 5B	DS 6"
	Refusal and bottom of test boring at 10.5 feet.		15				
			20				
			25				

Datum USGS Hammer Wt. 140 Lbs. Hole Diameter 5" Foreman MW
 Surf. Elev. 582.7 Ft. Hammer Drop 30 In. Rock Core Dia. Engineer RJH
 Date Started 11/13/91 Pipe Size 0.D.2 In. Boring Method CFA Date Completed 11/13/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION Dry FT.
 AFTER HRS. FT.
 BACKFILLED HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #. HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



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LOG OF TEST BORING

CLIENT City of Cincinnati BORING # 13
 PROJECT Geotechnical Services, Elberon Avenue Cut Slopes, Cincinnati, Ohio JOB # 91445E
 LOCATION OF BORING As shown on Boring Plan, Drawing 91445E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE				
				Cond	Blows/6"	No.	Type	Rec.
651.5	SURFACE	0.4						
651.1	TOPSOIL.	1.5		I	8/8/9	1	DS	16"
				I	16/31/37	2	DS	18"
650.0	Brown very moist medium stiff to stiff SILTY CLAY with limestone floaters and pencillike roots.			I	38/72/91	3	DS	12"
			5	I	111/123/114	4	DS	16"
644.2	Olive brown and brown moist stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	7.3		I	91/138	5	DS	12"
		7.5		I	126/6"	6	DS	6"
644.0	Olive brown and gray moist soft weathered SHALE and thinly bedded LIMESTONE (bedrock).		10					
	Bottom of test boring at 7.5 feet.							

NOTE

Datum _____ Hammer Wt. 35 Lbs. Hole Diameter 2" Foreman MW
 Surf. Elev. _____ Ft. Hammer Drop 30 In. Rock Core Dia. _____ Engineer RJH
 Date Started 12/30/91 Pipe Size 0.0.2 In. Boring Method HM Date Completed 12/30/91

SAMPLE CONDITIONS

D - DISINTEGRATED
 I - INTACT
 U - UNDISTURBED
 L - LOST

SAMPLER TYPE

DS - DRIVEN SPLIT SPOON
 PT - PRESSED SHELBY TUBE
 CA - CONTINUOUS FLIGHT AUGER
 RC - ROCK CORE

GROUND WATER DEPTH

FIRST NOTED None FT.
 AT COMPLETION Dry FT.
 AFTER - HRS. - FT.
 BACKFILLED Limed HRS.

BORING METHOD

HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DC - Driving Casing
 MD - Mud Drilling

*STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER 1' WITH 140 #, HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS



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TEST BORING REPORT

5-23-73-mf

Page 1 of 2

CLIENT City of Cincinnati, Ohio ORDER No. 97.752

PROJECT Elberon Avenue Slide - Project No. 3016 HOLE No. B-1

LOCATION As shown on plan and staked in the field by the City of Cincinnati, Ohio

DRILLER B. Mitchell DRILL No. 28 DATE STARTED 5-11-73

ELEVATION REFERENCE City of Cincinnati, Ohio DATE COMPLETED 5-11-73

CASING: DIAMETER 3.5" I.D. Hollow Stem Auger HAMMER WT. FALL

SAMPLER: DIAMETER & TYPE 2" O.D. Split Spoon HAMMER WT. 140# FALL 30"

DEPTH TO WATER: IMMEDIATE None UPON COMPLETION None

DEPTH TO WATER DAYS AFTER COMPLETION Backfilled WATER USED IN DRILLING No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
669.4'	0'						
		2.5' Brown and gray silty clay with cinder layers (fill), moist - medium stiff	1 2	0-1.5 1.5-3	SS Auger	2-3-4 4-1-2	10" 0"
666.9'	2.5'	3.5' Cinders sand, gravel and rock fragments (fill), moist - very loose to loose	3 4	3-4.5 4.5-6	Auger SS	1-1-1 4-6-8	0" 6"
663.4'	6.0'	1.5' Gray and brown clay, moist - medium stiff	5	6-7.5	SS	3-3-3	12"
661.9'	7.5'	1.5' Brown and gray silty clay, trace of rock fragments, moist - medium stiff	6	7.5-9	SS	3-4-5	10"
660.4'	9.0'	3.0' Gray and brown clay with rock fragments and floaters, moist - stiff	7 8	9-10.5 10.5-10.8	SS SS	3-5-7 4-60	3" 6"
657.4'	12.0'		9	12-13.5	SS	21-14-16	2"

REMARKS:

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,

THE H. C. NUTTING CO.

By

PROJECT Elberon Avenue Slide - Project No. 3016HOLE No. B-1

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
657.4'	12.0'						
		1.5' Brown and gray silty clay with rock fragments, moist - stiff					
655.9'	13.5'		10	13.5-15	SS	14-16-21	18"
		6.0' Gray and brown weathered shale with limestone fragments	11	15-16.5	SS	12-21-30	18"
			12	16.5-17	SS	17-35(rock)	6"
			13	18-19.5	SS	Rock layers	0"
649.9'	19.5'		14	19.5-20	SS	125	6"
		2.0' Layered gray shale and limestone	15	21-21.5	SS	145	6"
647.9'	21.5'						
		BORING COMPLETED					



THE H. C. NUTTING COMPANY

TESTING ENGINEERS AND SOIL CONSULTANTS • SINCE 1921

4120 AIRPORT ROAD • CINCINNATI, OHIO 45226 • TEL. 513-321-5816

"AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC, AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL."

TEST BORING REPORT

5-23-73-mf
Page 1 of 2

CLIENT City of Cincinnati, Ohio ORDER No. 97.752
PROJECT Elberon Avenue Slide - Project No. 3016 HOLE No. B-2
LOCATION As shown on plan and staked in the field by the City of Cincinnati, Ohio
DRILLER B. Mitchell DRILL No. 28 DATE STARTED 5-10-73
ELEVATION REFERENCE City of Cincinnati, Ohio DATE COMPLETED 5-10-73
CASING: DIAMETER 3.5" I.D. Hollow Stem Auger HAMMER WT. FALL
SAMPLER: DIAMETER & TYPE 2" O.D. Split Spoon HAMMER WT. 140# FALL 30"
DEPTH TO WATER: IMMEDIATE 6.5' UPON COMPLETION None
DEPTH TO WATER 1 DAYS AFTER COMPLETION None-Backfilled WATER USED IN DRILLING No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
667.1'	0'						
		1.5' Brown and gray silty clay with gravel and cinders (fill), moist - stiff	1	0-1.5	SS	4-8-20	8"
665.6'	1.5'		2	1.5-3	SS	2-3-4	6"
		7.5' Cinders, gravel and rock fragments (fill), moist - very loose	3	3-4.5	SS	1-1-1	6"
			4	4.5-6	SS	1-1-1	2"
			5	6-7.5	SS	1-1-1	0"
			6	7.5-9	SS	1-2-2	6"
658.1'	9.0'		7	9-10.5	SS	2-3-4	18"
		2.0' Dark gray clay with some gravel and cinders (fill), moist - medium stiff to soft	8	10.5-11	SS	1	6"
656.1'	11.0'		9	11-12	SS	7-9	12"
		1.0' Gray and brown clay with weathered shale fragments, moist - very stiff					
655.1'	12.0'		10	12-13.5	SS	8-13-22	14"
		7.5' Gray and brown weathered shale with limestone layers	11	13.5-15	SS	12-19-36	16"
			12	15-16.5	Auger	90	0"
			13	16.5-18	SS	54-26-53	12"
			14	18-19	SS	46-80	12"
647.6'	19.5'		15	19.5-20.5	SS	49-135	12"

Respectfully submitted,

THE H. C. NUTTING CO.

[Signature]

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing stability, excavating or other physical characteristics of materials penetrated in the boring.

PROJECT Elberon Avenue Slide - Project No. 3016

HOLE No. B-2

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
647.6'	19.5'						
646.6'	20.5'	1.0' Layered gray shale and limestone					
		BORING COMPLETED					



THE H. C. NUTTING COMPANY

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5-23-73-mf

TEST BORING REPORT

CLIENT City of Cincinnati, Ohio ORDER No. 97.752
PROJECT Elberon Avenue Slide - Project No. 3016 HOLE No. B-3
LOCATION As shown on plan and staked in the field by the City of Cincinnati, Ohio
DRILLER B. Mitchell DRILL No. 28 DATE STARTED 5-10-73
ELEVATION REFERENCE City of Cincinnati, Ohio DATE COMPLETED 5-10-73
CASING: DIAMETER 3.5" I.D. Hollow Stem Auger HAMMER WT. FALL
SAMPLER: DIAMETER & TYPE 2" O.D. Split Spoon HAMMER WT. 140# FALL 30"
DEPTH TO WATER: IMMEDIATE None UPON COMPLETION None
DEPTH TO WATER 1 DAYS AFTER COMPLETION None WATER USED IN DRILLING No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
662.4'	0'						
		1.5' Cinders, gravel and rock fragments (fill); slightly moist - dense	1	0-1.5	SS	5-13-26	5"
660.9'	1.5'		2	1.5-3	SS	5-8-9	10"
		3.0' Gray and brown clay with rock fragments, moist - very stiff	3	3-4.5	SS	7-8-12	12"
657.9'	4.5'		4	4.5-5	SS	-98-	2"
		10.5' Gray and brown weathered shale with limestone layers	5	6-7.5	SS	38-22-36	10"
			6	7.5-9	SS	22-36-52	18"
			7	9-10.5	SS	19-36-60	16"
			8	10.5-12	SS	17-19-21	12"
			9	12-13.5	SS	26-39-52	18"
647.4'	15.0'		10	13.5-14.5	SS	40-90	12"
		2.5' Layered gray shale limestone	11	15-16	SS	48-130	12"
644.9'	17.5'		12	16-17.5	SS	65-154	12"
		BORING COMPLETED					

REMARKS:

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,

THE H. C. NUTTING CO.

[Signature]



THE H. C. NUTTING COMPANY

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TEST BORING REPORT

5-24-73-mf
Page 1 of 2

CLIENT City of Cincinnati, Ohio ORDER No. 97.752
PROJECT Elberon Avenue Slide - Project No. 3016 HOLE No. B-8
LOCATION As shown on plan and staked in the field by the City of Cincinnati, Ohio
DRILLER Jerry Mitchell DRILL No. 24 DATE STARTED 5-13-73
ELEVATION REFERENCE City of Cincinnati, Ohio DATE COMPLETED 5-13-73
CASING: DIAMETER 2.25" I.D. Hollow Stem Auger HAMMER WT. FALL
SAMPLER: DIAMETER & TYPE 2" O.D. Split Spoon HAMMER WT. 140# FALL 30"
DEPTH TO WATER: IMMEDIATE Wet seam at 5.0' UPON COMPLETION None
DEPTH TO WATER DAYS AFTER COMPLETION Backfilled WATER USED IN DRILLING No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
638.0'	0'						
		1.5' Gray and brown silty clay with topsoil and some cinders (fill), moist - soft	1	0-1.5	SS	1-1-2	12"
636.5'	1.5'						
		1.5' Gray and brown clay with rock fragments (fill), moist - medium stiff	2	1.5-3	SS	2-2-2	12"
635.0'	3.0'						
		1.5' Gray and brown sandy silty clay with gravel and rock fragments (fill), moist - medium stiff	3	3-4.5	SS	5-4-7	18"
633.5'	4.5'						
		1.5' Mottled gray and brown clay with rock fragments (fill), moist - medium stiff	4	4.5-6	SS	2-3-5	18"
632.0'	6.0'						
		4.0' Gray and brown clay with weathered shale fragments, moist - very stiff	5	6-7.5	SS	4-8-11	18"
			6	7.5-9	SS	10-12-18	18"
628.0'	10.0'		7	10-11.5	SS	12-16-25	18"

Respectfully submitted,

THE H. C. NUTTING CO.

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing stability, excavating or other physical characteristics of materials penetrated in the boring.

PROJECT Elberon Avenue Slide - Project No. 3016HOLE No. B-8

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER OF % Core Rec.	Recovery
628.0'	10.0'						
		2.0' Gray and brown weathered shale					
626.0'	12.0'	4.0' Gray and brown weatherd shale with limestone fragments	8 9	12.5-14 15-15.5	SS SS	27-29-34 -100-	18" 6"
622.0'	16.0'	4.0' Layered gray shale	10	17.5-18	SS	-105-	6"
618.0'	20.0'	Refusal at 20.5'	11	20-20.5	SS	-125-	6"
		BORING COMPLETED					



CIVIL ENGINEERS

G. J. Thelen & Associates, Inc.

- ☐ 516 Enterprise Drive/Covington, Kentucky 41017-1595/606-341-1322/Fax 606-341-0832
☐ 10265 Spartan Drive/Cincinnati, Ohio 45215/513-771-5005/Fax 513-771-6669
☐ 3337 Milverton Court/Cincinnati, Ohio 45248-2865/513-574-7137

SOIL CLASSIFICATION SHEET

NON COHESIVE SOILS

(Silt, Sand, Gravel and Combinations)

Density

Very Loose	- 5 blows/ft. or less
Loose	- 6 to 10 blows/ft.
Medium Dense	-11 to 30 blows/ft.
Dense	-31 to 50 blows/ft.
Very Dense	-51 blows/ft. or more

Particle Size Identification

Boulders	-8 inch diameter or more
Cobbles	-3 to 8 inch diameter
Gravel	-Coarse - $\frac{3}{4}$ to 3 inches Fine - $\frac{3}{16}$ to $\frac{3}{4}$ inches
Sand	-Coarse -2mm to 5mm (dia. of pencil lead) Medium -0.45mm to 2mm (dia. of broom straw) Fine -0.075mm to 0.45mm (dia. of human hair) Silt -0.005mm to 0.075mm (Cannot see particles)

Relative Proportions

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

COHESIVE SOILS

(Clay, Silt and Combinations)

Consistency**Field Identification****Unconfined Compressive
Strength (tons/sq. ft.)**

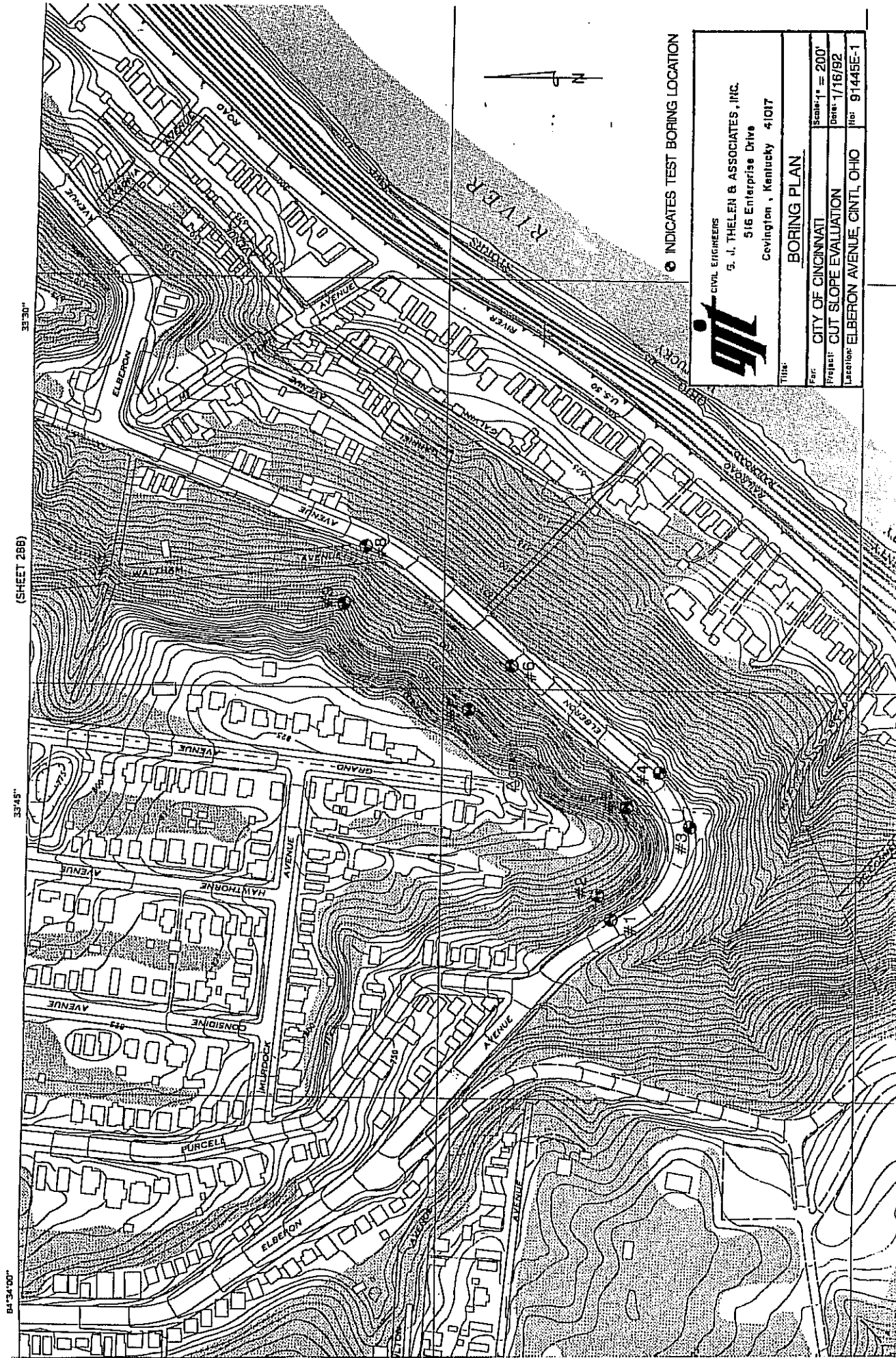
Very soft	Easily penetrated several inches by fist	Less than 0.25
Soft	Easily penetrated several inches by thumb	0.25 - 0.5
Medium	Can be penetrated several inches by thumb with moderate effort	0.5 - 1.0
Stiff	Readily indented by thumb but penetrated only with great effort	1.0 - 2.0
Very Stiff	Readily indented by thumbnail	2.0 - 4.0
Hard	Indented with difficulty by thumbnail	Over 4.0

Classification on logs are made by visual inspection.

Standard Penetration Test—Driving a 2.0" O. D., $1\frac{3}{8}$ " I. D., sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary for GJT to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6.0 inches of penetration on the drill log (Example—6/8/9). The standard penetration test results can be obtained by adding the last two figures (i.e. $8 + 9 = 17$ blows/ft.). Refusal is defined as greater than 50 blows for 6 inches or less penetration.

Strata Changes—In the column "Soil Descriptions" on the drill log the horizontal lines represent strata changes. A solid line (——) represents an actually observed change, a dashed line (---) represents an estimated change.

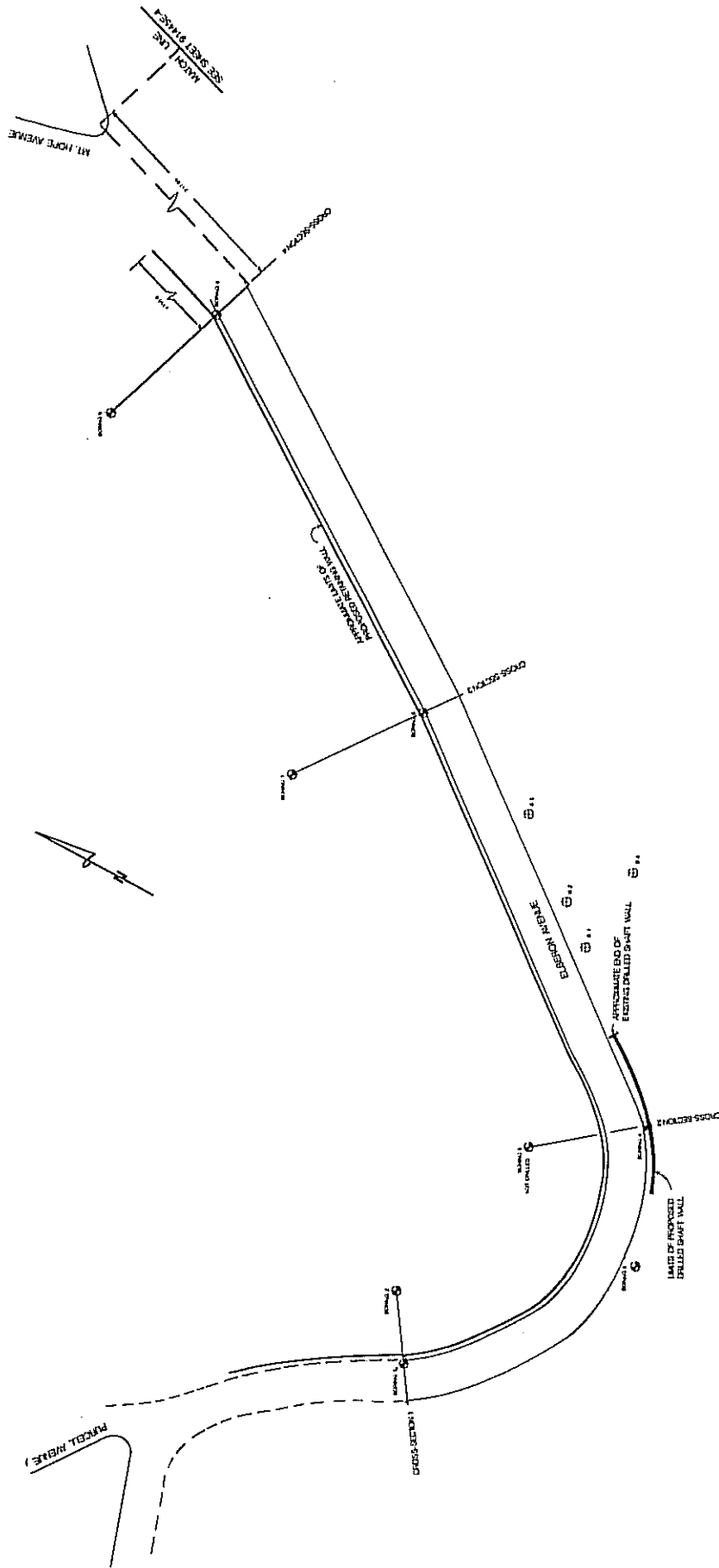
Ground Water observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.



○ INDICATES TEST BORING LOCATION

jit CIVIL ENGINEERS
S. J. THELEN & ASSOCIATES, INC.
516 Enterprise Drive
Covington, Kentucky 41017

BORING PLAN	
File	CITY OF CINCINNATI
Project	CUT SLOPE EVALUATION
Date	1/16/92
Location	ELBERON AVENUE, CINTL, OHIO
Scale: 1" = 200'	
Drawn	
No.	91445E-1

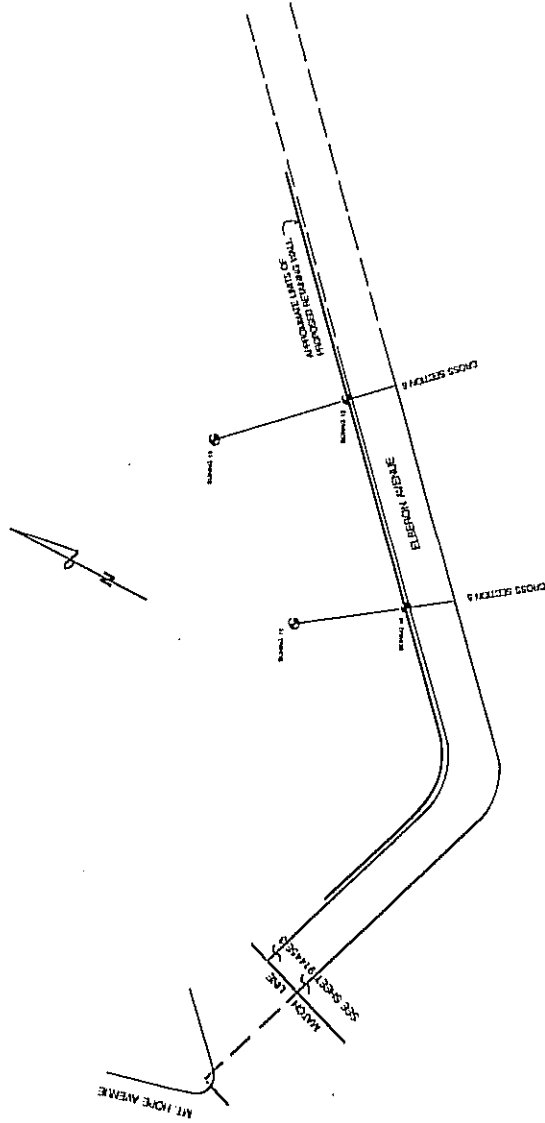


NOTES: RECENT TEST DATA LOCATION
 NOTES: HC HITTING TEST DATA LOCATION, (1973)

PLAN

CITY OF CHICAGO
 CIVIL ENGINEERING
 ELSTON AVENUE CIVIL CHGO 81453

Scale: 1" = 50'
 Date: 11/19/82
 Project: ELSTON AVENUE CIVIL CHGO 81453




INDICATES TEST BORING LOCATION



G.T. FIELDS & ASSOCIATES, INC.
 115 E. Main Street
 Erie, PA 16590-0001
 (412) 863-1111

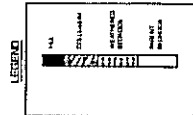
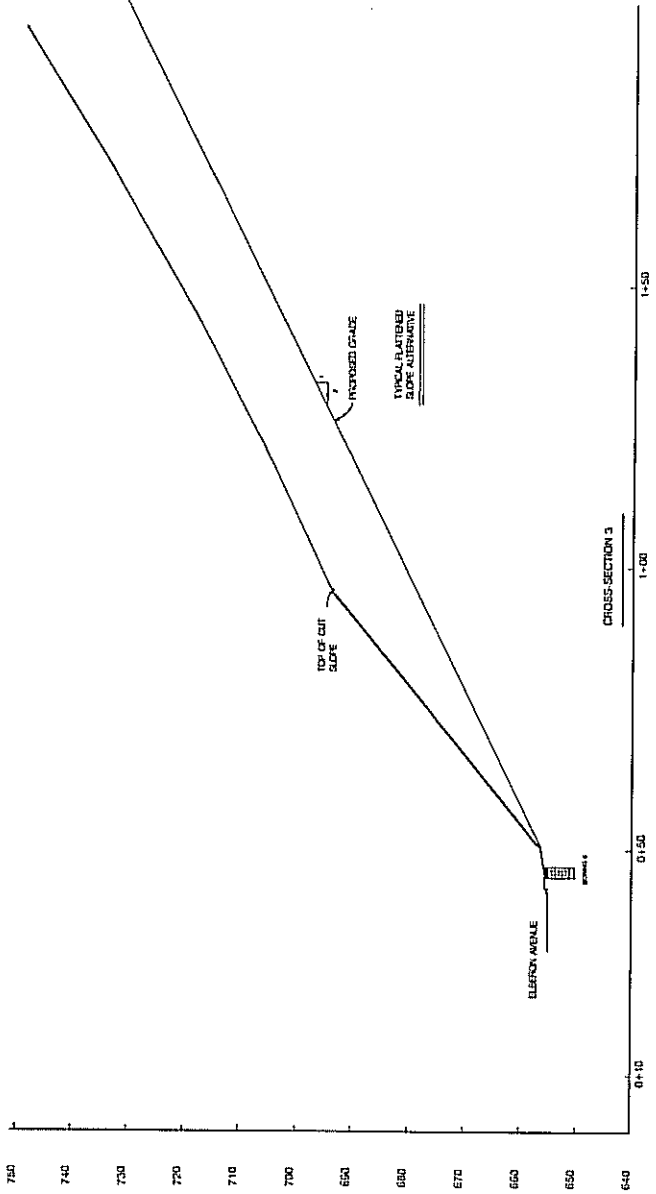
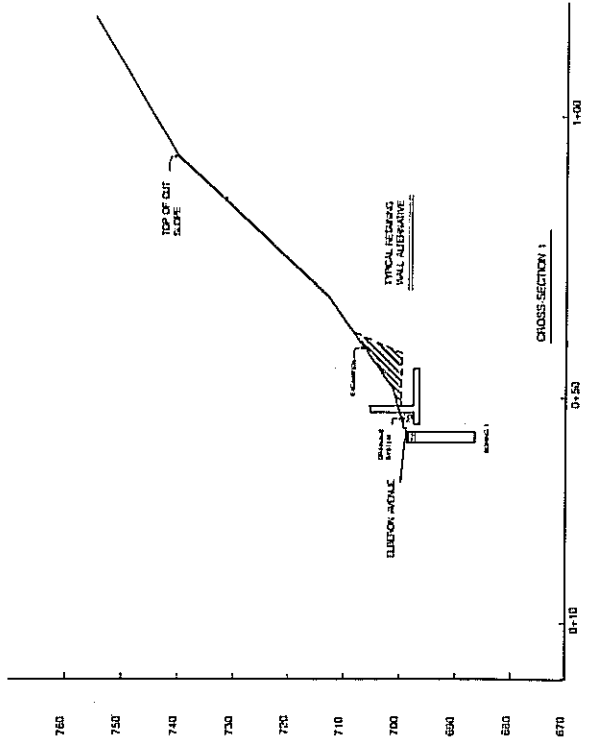
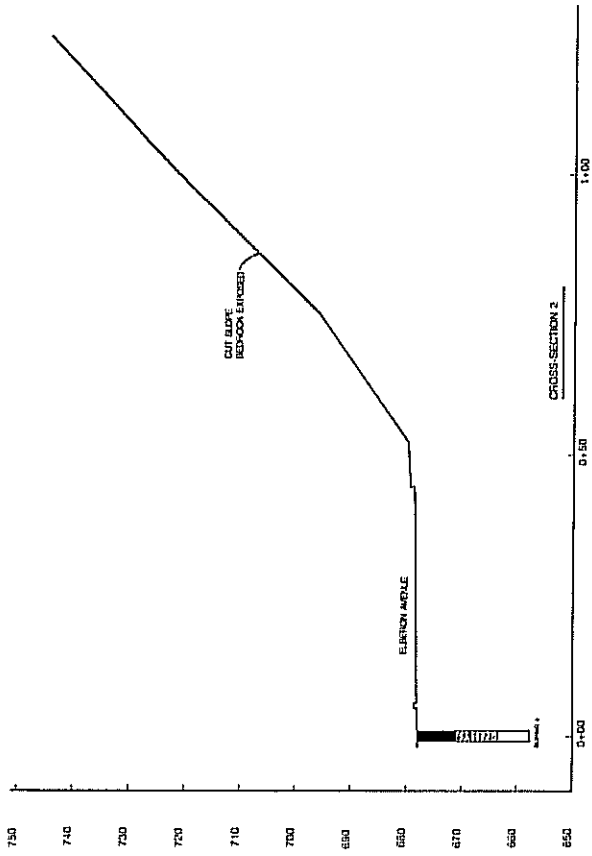
PLAN

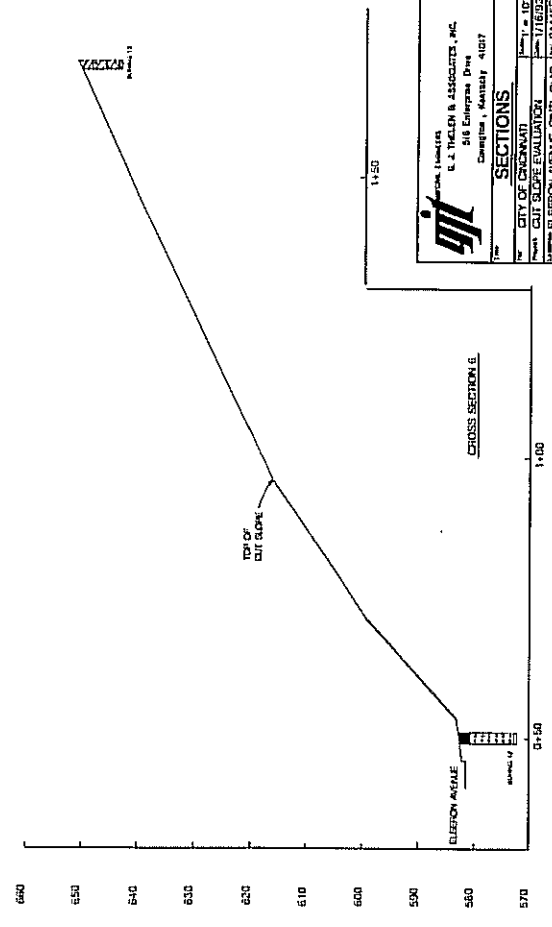
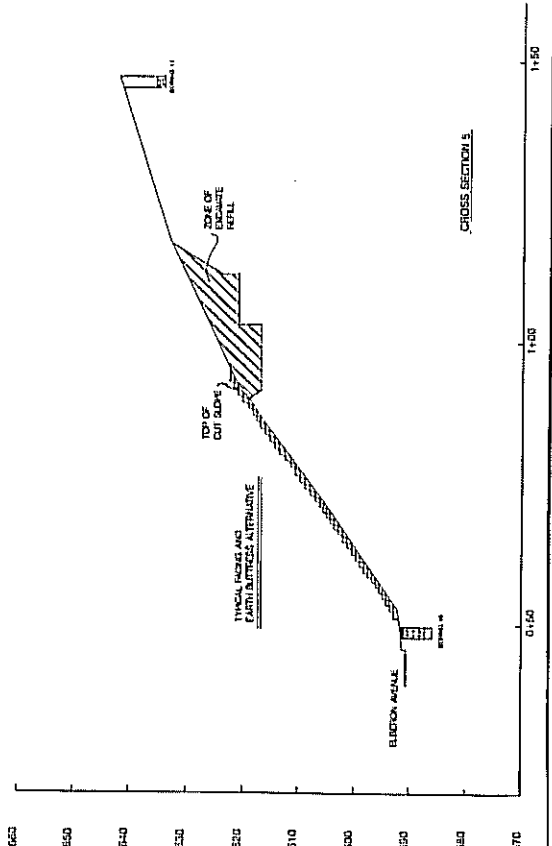
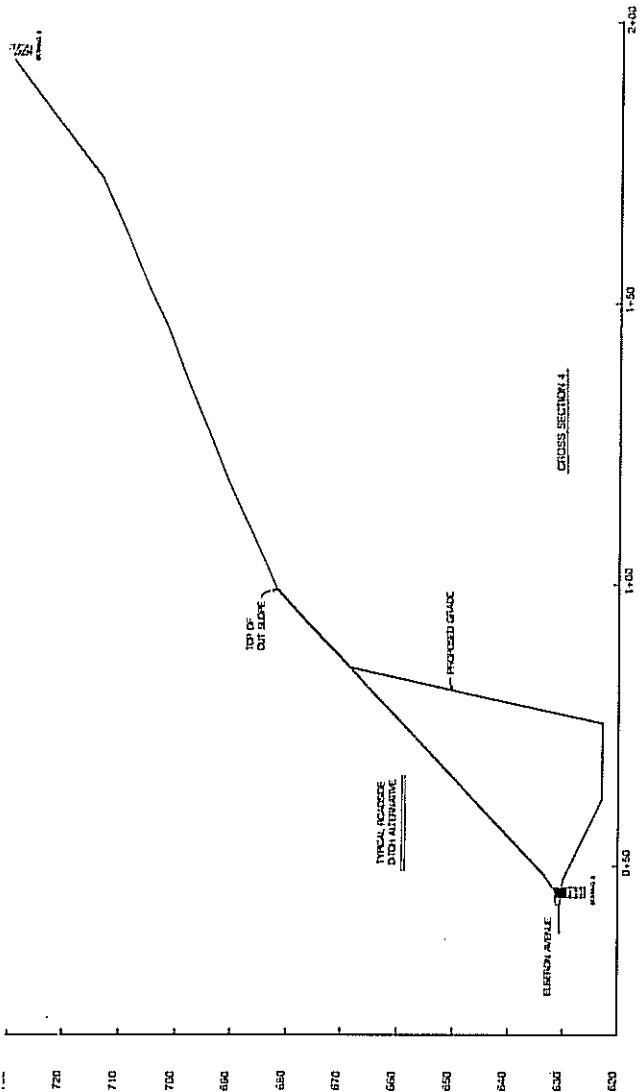
City of Cincinnati	Scale: 1" = 50'
Project: OUT SLOPE EVALUATION	Sheet: 1114025
Location: ELEVATION AVENUE, CNIL, OHIO	9144025-1



C.J. THOLEN & ASSOCIATES, INC.
 216 Enterprise Drive
 Galesburg, Maryland 4107

SECTIONS	
101	CITY OF CHESAPEAKE
102	CITY OF CHESAPEAKE
103	CITY OF CHESAPEAKE
104	CITY OF CHESAPEAKE
105	CITY OF CHESAPEAKE
106	CITY OF CHESAPEAKE
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200	CITY OF CHESAPEAKE





G. J. THELEN & ASSOCIATES, INC.
518 Corporate Drive
Cincinnati, Kentucky 45217

SECTIONS

CITY OF CINCINNATI
Pavement CUT SLOPE EVALUATION
Project: ELEVATION AVENUE, UNTIL OHIO

Sheet 1 of 10
Date: 11/16/92
Job No: 91445E-8

SUBMISSION CHECKLIST FOR STATE OF OHIO CAPITAL IMPROVEMENT GRANT APPLICATIONS

This checklist must be submitted with the other items necessary for project eligibility and review. Upon district receipt of the full package, this checklist will be date stamped and a copy will be forwarded to the applying jurisdiction. Once the checklist has been stamped, the district will accept no additional information regarding the project.

Elberon Avenue Rockfall Protection

The following items **MUST** be submitted (by the deadline for such submission) in order for the District Two-Integrating Committee and Support Staff to consider your application complete and eligible for funding:

<input checked="" type="checkbox"/> OPWC Application for Financial Assistance (State of Ohio Form—Signed by C.E.O.)	<input checked="" type="checkbox"/> Additional Support Information Form (District Two Form)	<input checked="" type="checkbox"/> Detailed Cost Estimate (Signed by P.E.)
<input checked="" type="checkbox"/> Useful Life Certificate (Signed by P.E.)	<input type="checkbox"/> Status of Funds Certification (Jurisdiction Letterhead—Signed by C.F.O.)	<input checked="" type="checkbox"/> Project Vicinity Map
<input checked="" type="checkbox"/> Project Pictures (Minimum of 4 - Mounted)		

The following items **MUST** be submitted with the application in order for the District Two Support Staff to consider the maximum points available for your application (Specify type of submission):

- **Infrastructure Condition Data**
Historical documentation, Photographs, Service Requests, Geotechnical Report

- **Infrastructure Safety Data**
- **Infrastructure Health Data**

- **Jurisdiction User Fee/Assessment Data**
- **Economic Growth Data**

- **Alleviate Traffic Hazards/LOS Data**
- **Ban/Moratorium Data**

- **Users Certification Data**
Certified Traffic Count

The following items must be submitted by November 5, 2007:

<input type="checkbox"/> Capital Improvement Report (State of Ohio Form)	<input type="checkbox"/> Enabling Legislation (On Jurisdiction Letterhead and Signed by Clerk)
---	---